DENON®

Service Manual Ver. 2

INTEGRATED NETWORK AV RECEIVER
AVR-X3700H
INTEGRATED NETWORK AV AMPLIFIER
AVC-X3700H

Click here!

On-line service parts list

AVR-X3700H: https://dmedia.soundunited.com/documents/details/27083

AVC-X3700H: https://dmedia.soundunited.com/documents/details/27084

ONLINE PARTS LIST (P5)

WEB owner's manual

NA: http://manuals.denon.com/AVRX3700H/NA/EN/index.php

EU: http://manuals.denon.com/AVCX3700H/EU/EN/index.php

AP: http://manuals.denon.com/AVRX3700H/AP/ZH/index.php

Upload is planned for the time of a future press release.

BEFORE SERVICING THIS UNIT

ELECTRICAL

MECHANICAL

REPAIR INFORMATION

UPDATING

- For purposes of improvement, specifications and design are subject to change without notice.
- Please use this service manual when referring to the operating instructions without fail.
- Some illustrations used in this service manual are slightly different from the actual product.

Please refer to the MODIFICATION NOTICE.

Confidential

BEFORE SERVICING THIS UNIT

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Sound modes and channel output
Sound modes and surround parameters
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POST-SERVICE PRECAUTIONS

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JIG FOR SERVICING

SAFETY PRECAUTIONS

The following items should be checked for continued protection of the customer and the service technician.

Leakage current check

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.
Be sure to test for leakage current with the AC plug in both polarities, in addition, when the set's power is in each state (on, off and standby mode), if applicable.

CAUTION **Please heed the following cautions and instructions during servicing and inspection.**

◎ Heed the cautions!

Cautions which are delicate in particular for servicing are labeled on the cabinets, the parts and the chassis, etc. Be sure to heed these cautions and the cautions described in the handling instructions.

◎ Cautions concerning electric shock!

(1) An AC voltage is impressed on this set, so if you touch internal metal parts when the set is energized, you may get an electric shock. Avoid getting an electric shock, by using an isolating transformer and wearing gloves when servicing while the set is energized, or by unplugging the power cord when replacing parts, for example.
(2) There are high voltage parts inside. Handle with extra care when the set is energized.

◎ Caution concerning disassembly and assembly!

Through great care is taken when parts were manufactured from sheet metal, there may be burrs on the edges of parts. The burrs could cause injury if fingers are moved across them in some rare cases. Wear gloves to protect your hands.

◎ Use only designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). Be sure to use parts which have the same properties for replacement. The burrs have the same properties. In particular, for the important safety parts that are indicated by the ⚠ mark on schematic diagrams and parts lists, be sure to use the designated parts.

◎ Be sure to mount parts and arrange the wires as they were originally placed!

For safety seasons, some parts use tapes, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care should also be taken with the positions of the wires by arranging them and using clamps to keep them away from heating and high voltage parts, so be sure to set everything back as it was originally placed.

◎ Make a safety check after servicing!

Check that all screws, parts and wires removed or disconnected when servicing have been put back in their original positions, check that no serviced parts have deteriorated the area around. Then make an insulation, check on the external metal connectors and between the blades of the power plug. And otherwise check that safety is ensured.
(Insulation check procedure)
Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and on the power. Using a 500V insulation resistance tester, check that the insulation resistance value between the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1M Ω or greater. If it is less, the set must be inspected and repaired.

CAUTION **Concerning important safety parts**

Many of the electric and the structural parts used in the set have special safety properties. In most cases these properties are difficult to distinguish by sight, and the use of replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and the parts list in this service manual. Be sure to replace them with the parts which have the designated part number.

(1) Schematic diagrams Indicated by the ⚠ mark.
(2) Parts lists Indicated by the ⚠ mark.
The use of parts other than the designated parts could cause electric shocks, fires or other dangerous situations.

NOTE FOR SCHEMATIC DIAGRAM

WARNING:
Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

WARNING:
DO NOT return the set to the customer unless the problem is identified and remedied.

NOTICE:
(1) ALL RESISTANCE VALUES IN OHM. k=1,000 OHM / M=1,000,000 OHM
(2) ALL CAPACITANCE VALUES ARE EXPRESSED IN MICRO FARAD, UNLESS OTHERWISE INDICATED. P INDICATES MICRO-MICRO FARAD. N INDICATES NANO FARAD.
(3) EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
(4) CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

HANDLING THE SEMICONDUCTOR AND OPTICS

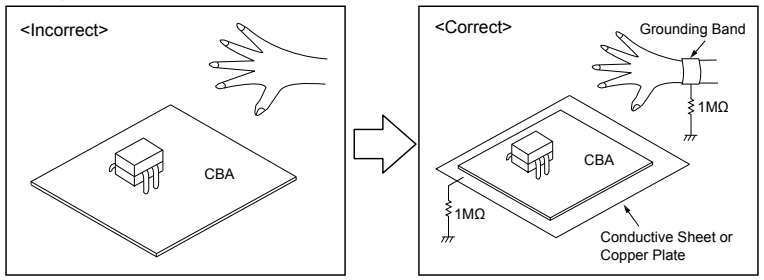
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band (1 M ohm) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 M ohm) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing

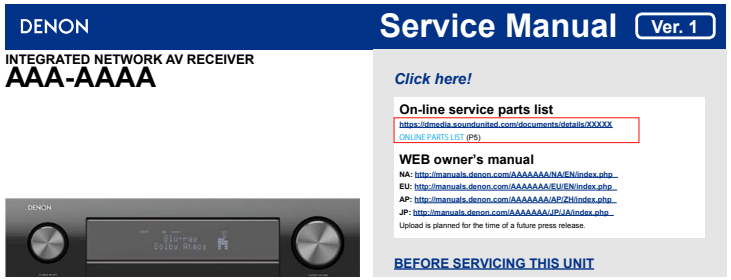


ONLINE PARTS LIST

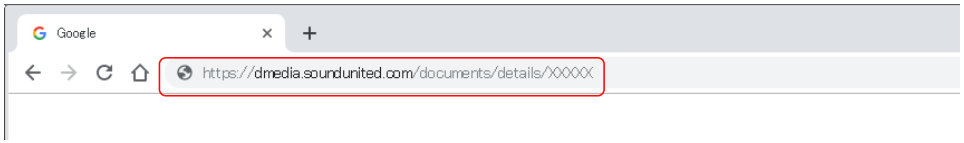
Accessing the Parts List

(1) Access from the Service Manual

- Click the URL link on the cover of the service manual.
  Examples of display

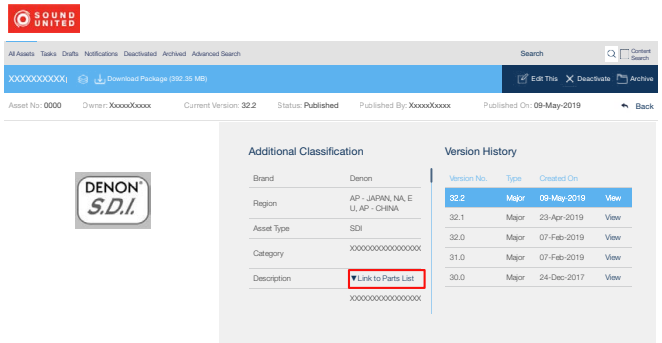


NOTE : If the web browser does not open automatically, copy the URL and paste it into the address bar of the web browser and then press Enter.



(2) Accessing the Part List from the Model Asset Screen.

- Display Model Asset from New SDI.
- Click the section displayed as ▼ Link to Part Lists under the model name.



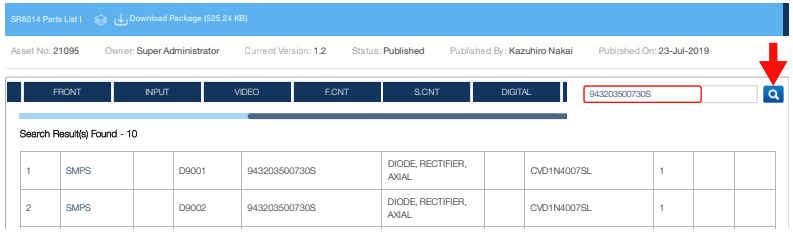
NOTE : If the ▼ Link to Parts List section is not displayed, download the parts table from the Asset list.

Searching Part Numbers or Ref. Numbers

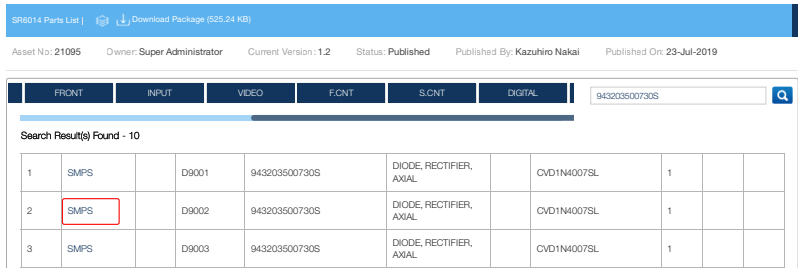
You can search a Parts List for part numbers or Ref. numbers.

(1) Enter the part number or Ref. number in the search window of the Parts List, and press the search button.

(2) The search results are displayed.
The name of the sheet in which the search part is used and the part's line are displayed.



(3) Next, click the "**Sheet**" section of the search results.



NOTE FOR PARTS LIST

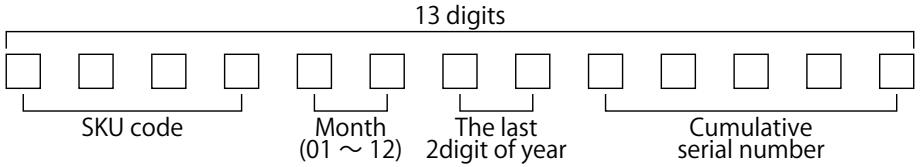
1. Parts indicated by "**nsp**" on this table cannot be supplied.
2. When ordering a part, make a clear distinction between "1" and "I" (i) to avoid mis-supplying.
3. A part ordered without specifying its part number can not be supplied.
4. Part indicated by "**@**" mark is not illustrated in the exploded and packaging view.

WARNING: Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

SERIAL NUMBER

Serial Number Organization

The 13-digit serial number that contains the code of the manufacturing date.



SKU Code of this Unit

Product SKU	SKU Code
AVRX3700HBKE3	DBCF
AVCX3700HBKE2	DBCG
AVRX3700HBKE1C	DBCH

Sound mode table

Sound modes and channel output

○ This indicates the audio output channels or surround parameters that can be set.
◎ This indicates the audio output channels. The output channels depend on the settings of “Speaker Config.”.

Sound mode	Channel output												
	Front L/R	Center	Surround L/R	Surround Back L/R	Front Height L/R	Top Front L/R	Top Middle L/R	Top Rear L/R	Rear Height L/R	Front Dolby Atmos Enabled L/R	Surround Dolby Atmos Enabled L/R	Back Dolby Atmos Enabled L/R	Subwoofer
Direct/Pure Direct (2-channel)	○												◎※ 5
Direct/Pure Direct (Multi-channel)	○	◎	◎	◎※ 6	◎※ 6	◎※ 6	◎※ 6	◎※ 6	◎※ 6	◎※ 6	◎※ 6	◎※ 6	◎
DSD Direct (2-channel)	○												◎※ 5
DSD Direct (Multi-channel)	○	◎	◎										◎
Stereo	○												◎
Dolby Atmos	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Dolby TrueHD	○	◎	◎	◎※ 6									◎
Dolby Digital Plus	○	◎	◎	◎※ 6									◎
Dolby Digital	○	◎	◎										◎
Dolby Surround ※ 1	○	◎	◎	◎※ 7	◎	◎	◎	◎	◎	◎	◎	◎	◎
IMAX DTS:X	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
IMAX DTS	○	◎	◎※ 9	◎※ 9									◎
DTS:X	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
DTS-HD	○	◎	◎	◎※ 6									◎
DTS Express	○	◎	◎	◎									◎
DTS 96/24	○	◎	◎	◎									◎
DTS Surround	○	◎	◎	◎									◎
DTS Neural:X ※ 3	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
DTS Virtual:X ※ 4	○	◎	◎	◎									◎
Multi Ch In	○	◎	◎	◎※ 6									◎
Multi Ch Stereo	○	◎	◎	◎	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎
Rock Arena	○	◎	◎	◎	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎
Jazz Club	○	◎	◎	◎	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎
Mono Movie	○	◎	◎	◎	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎
Video Game	○	◎	◎	◎	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎
Matrix	○	◎	◎	◎	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎※ 12	◎
Virtual	○												◎

※ 1 The applicable sound mode includes “Dolby Surround” and sound modes that have “+Dolby Surround” in the sound mode name.
※ 3 The applicable sound mode includes “DTS Neural:X” and sound modes that have “+Neural:X” in the sound mode name.
※ 4 The applicable sound mode includes “DTS Virtual:X” and sound modes that have “+Virtual:X” in the sound mode name.
※ 5 Audio is output when “Subwoofer Mode” in the menu is set to “LFE+Main”.
※ 6 A signal for each channel contained in an input signal is output as audio.
※ 7 Audio is not output when the “Speaker Virtualizer” in the menu is set to “On” and “Speaker Config.” - “Surr. Back” in the menu is set to “1 spkr”.
※ 9 When “Speaker Config.” - “Surr. Back” is set to “2 spkrs”, “Speaker Config.” - “Center” is set to “Large” or “Small”, and sound mode is set to “IMAX DTS”, surround audio is output from the surround back speaker. Audio is not output from the surround speaker.
※ 12 Audio is output from the speakers specified in the “Surround Parameter” – “Speaker Select” settings.

Sound modes and surround parameters

Sound mode	Surround Parameter																	Tone ※ 9	Center Level Adjust ※ 10	Subwoofer Level Adjust ※ 11	Audyssey				Restorer ※ 16
	Cinema EQ	Loudness Management ※ 2	Dynamic Compression ※ 3	Dialog Control ※ 4	Low Frequency Effects ※ 5	Delay Time	Effect Level	Room Size	Speaker Select ※ 6	Speaker Virtualizer ※ 7	DTS Neural:X	IMAX	IMAX Audio Settings	High Pass Filter ※ 8	Low Pass Filter ※ 8	Subwoofer Mode ※ 8	Subwoofer				MultEQ® XT32 ※ 12 ※ 13	Dynamic EQ ※ 14 ※ 15	Dynamic Volume ※ 14 ※ 15	Audyssey LFC™ ※ 14 ※ 15	
Direct/Pure Direct (2-channel) ※ 1		○	○														○※ 18			○※ 18					
Direct/Pure Direct (Multi-channel) ※ 1		○	○	○	○														○	○					
DSD Direct (2-channel)																	○※ 18			○※ 18					
DSD Direct (Multi-channel)																			○	○					
Stereo		○	○	○	○												○※ 19	○		○※ 19	○	○	○	○	○
Dolby Atmos	○	○	○		○					○								○	○	○	○	○	○	○	
Dolby TrueHD	○	○	○		○													○	○	○	○	○	○	○	
Dolby Digital Plus	○	○	○		○													○	○	○	○	○	○	○	
Dolby Digital	○	○	○		○													○	○	○	○	○	○	○	
Dolby Surround	○	○	○							○								○	○	○	○	○	○	○	○
IMAX DTS:X	○		○	○	○						○	○	○	○	○	○		○	○	○	○	○	○	○	
IMAX DTS	○		○		○							○	○	○	○	○		○	○	○	○	○	○	○	
DTS:X	○		○	○	○						○	○						○	○	○	○	○	○	○	
DTS-HD	○		○		○							○						○	○	○	○	○	○	○	
DTS Express	○				○							○						○	○	○	○	○	○	○	
DTS 96/24	○				○							○						○	○	○	○	○	○	○	
DTS Surround	○		○		○							○						○	○	○	○	○	○	○	
DTS Neural:X	○	○	○															○	○	○	○	○	○	○	○
DTS Virtual:X	○		○															○	○	○	○				○
Multi Ch In	○				○													○	○	○	○	○	○	○	
Multi Ch Stereo	○	○	○	○	○				○									○	○	○	○	○	○	○	○
Rock Arena		○	○	○	○		○	○	○									○	○	○	○	○	○	○	○
Jazz Club		○	○	○	○		○	○	○									○	○	○	○	○	○	○	○
Mono Movie		○	○	○	○		○	○	○									○	○	○	○	○	○	○	○
Video Game		○	○	○	○		○	○	○									○	○	○	○	○	○	○	○
Matrix		○	○	○	○	○			○									○	○	○	○	○	○	○	○
Virtual		○	○	○	○													○		○	○	○	○	○	○

※ 1 During playback in Pure Direct mode, the surround parameters are the same as in Direct mode.
※ 2 This item can be selected when a Dolby Digital, Dolby Digital Plus, Dolby TrueHD or Dolby Atmos signal is played.
※ 3 This item can be selected when a Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS:X or DTS signal is played.
※ 4 This item can be selected when a DTS:X signal that is compatible with the Dialog Control function is input.
※ 5 This item can be selected when a Dolby Digital or DTS signal or DVD-Audio is played.
※ 6 This item can be selected when Height, Ceiling or Dolby Atmos Enabled speakers are used.
※ 7 This item can be set when any Height, Ceiling or Dolby Atmos Enabled speakers are not used, or Surround speakers are not used.
※ 8 This item can be selected when “IMAX Audio Settings” in the menu is set to “Manual”.
※ 9 This item cannot be set when “Dynamic EQ” is set to “On”.
※ 10 This item cannot be set when “Center” is set to “None”.
※ 11 This item cannot be set when “Subwoofer” in the menu is set to “None”.
※ 12 This item cannot be set when Audyssey® Setup (Speaker Calibration) has not been performed.
※ 13 This item cannot be selected when a DTS:X format with a sampling frequency of over 48 kHz is input.
※ 14 This item cannot be set when “MultEQ® XT32” in the menu is set to “Off”.
※ 15 This item cannot be set when sound mode is “DTS Virtual:X” or sound mode that have “+Virtual:X” in the sound mode name.
※ 16 This item can be set when the input signal is analog, PCM 48 kHz or 44.1 kHz.
※ 18 This setting is available when “Subwoofer Mode” in the menu is set to “LFE+Main”.
※ 19 This item can be set when “Front” is set to “Small” or “Subwoofer Mode” is set to “LFE+Main”.

Types of input signals, and corresponding sound modes

● This indicates the default sound mode. ○ This indicates the selectable sound mode.

Sound mode	NOTE	2-channel signal								Multi-channel signal														
		Dolby TrueHD	Dolby Digital Plus	Dolby Digital (EX)	DTS-HD	DTS Express	DTS	Analog / PCM	DSD (Super Audio CD)	Dolby Atmos	Dolby TrueHD	Dolby Digital Plus	Dolby Digital (EX)	IMAX DTS:X	IMAX DTS	DTS:X	DTS-HD	DTS Express	DTS ES Dscrt6.1	DTS ES Mtrx6.1	DTS	PCM multi-channel	DSD (Super Audio CD)
Pure Direct																								
Pure Direct		○	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	
DSD Pure Direct									○															○
Stereo																								
Stereo		○	○	○	○	○	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Dolby Surround																								
Dolby Atmos	※ 1									●														
Dolby TrueHD		○								○※ 3	○													
Dolby Digital Plus			○							○※ 5		○												
Dolby Digital				○									○											
Dolby (D+) (HD) + Dolby Surround											●	●	●											
Dolby (D+) (HD) + Neural:X											○	○	○											
Dolby Surround		●	●	●	○	○	○	○	○															
DTS Surround																								
IMAX DTS:X														●※ 10										
IMAX DTS														○※ 10							○※ 11			
DTS:X MSTR / DTS:X														○※ 12		●								
DTS-HD MSTR					○※ 13										○※ 12		○※ 13							
DTS-HD HI RES					○※ 15										○※ 12		○※ 15							
DTS Express						○									○※ 12			○						
DTS ES Dscrt 6.1	※ 6																		○					
DTS ES Mtrx 6.1	※ 6																			○				
DTS 96/24							○※ 16														○※ 16			
DTS Surround							○								○※ 12				○	○	○			
IMAX DTS + Neural:X															●※ 10						○※ 11			
IMAX DTS / IMAX DTS:X + Virtual:X														○※ 10	○※ 10						○※ 11			
DTS (-HD) + Dolby Surround															○		○	○	○	○	○			
DTS (-HD) + Neural:X															○※ 12		●※ 7	●※ 7	●※ 7	●※ 7	●※ 7			
DTS (-HD) / DTS:X + Virtual:X														○※ 12	○※ 12	○※ 8	○	○	○	○	○			
DTS Neural:X		○	○	○	●※ 7	●※ 7	●※ 7	○	○															
DTS Virtual:X					○	○	○	○	○															
Multi Ch In																								
Multi Ch In																						●	●	
Multi Ch In 7.1	※ 6																					○※ 19		
Multi In + Dolby Surround																						○	○	
Multi In + Neural:X																						○	○	
Multi In + Virtual:X																						○	○	
Original sound mode																								
Multi Ch Stereo		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Rock Arena		○	○	○	○	○	○	○	○	○※ 20	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Jazz Club		○	○	○	○	○	○	○	○	○※ 20	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Mono Movie		○	○	○	○	○	○	○	○	○※ 20	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Video Game		○	○	○	○	○	○	○	○	○※ 20	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Matrix		○	○	○	○	○	○	○	○	○※ 20	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Virtual		○	○	○	○	○	○	○	○	○※ 20	○	○	○	○	○	○	○	○	○	○	○	○	○	○

※ 1 This item can be selected when using any of the Surround Back, Front Height, Top Front, Top Middle, Top Rear, Rear Height, Front Dolby, Surround Dolby or Back Dolby speaker. It can also be selected when the "Speaker Virtualizer" setting is turned "On".
※ 2 The default sound mode for the AirPlay playback is "Direct".
※ 3 This can be selected when the Dolby Atmos signal contains the Dolby TrueHD signal.
※ 5 This can be selected when the Dolby Atmos signal contains the Dolby Digital Plus signal.
※ 6 This item can be selected when surround back speakers are used.
※ 7 This item cannot be selected when a DTS(-HD) format with a sampling frequency of over 48 kHz is input.
※ 8 This item cannot be selected when a DTS:X format with a sampling frequency of over 48 kHz is input.
※ 10 Selectable when "Surround Parameter" - "IMAX" is set to "Auto" in the menu.
※ 11 Selectable when "Surround Parameter" - "IMAX" is set to "On" in the menu and a 48 kHz sampling frequency DTS 5.1 channel signal is being input.
※ 12 Selectable when "Surround Parameter" - "IMAX" is set to "Off". (Selectable sound modes vary depending on the type of input signal).
※ 13 This item can be selected when the input signal is DTS-HD Master Audio.
※ 15 This item can be selected when the input signal is DTS-HD Hi Resolution.
※ 16 This item can be selected when the input signal is DTS 96/24.
※ 19 This item can be selected when the input signals contain surround back signals.
※ 20 This can be selected when the Dolby Atmos signal contains the Dolby TrueHD or Dolby Digital Plus signal.

POST-SERVICE PRECAUTIONS

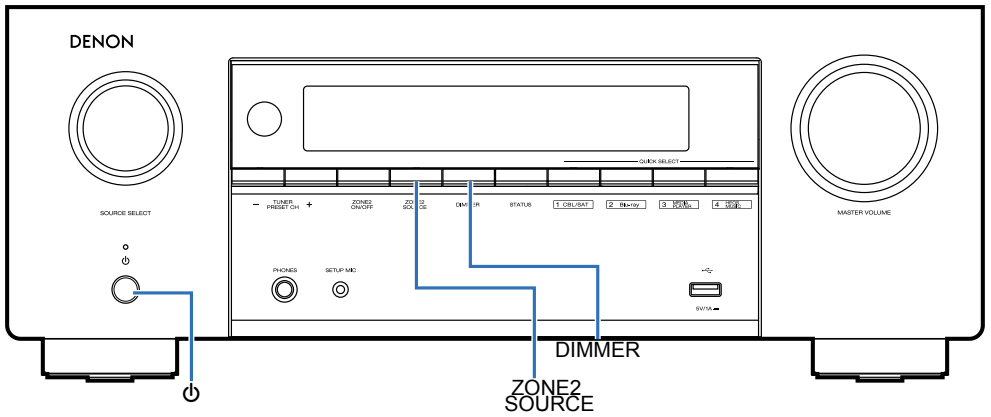
Initializing this Unit

Make sure to initialize this unit after replacing the microcomputer or any peripheral equipment, or the digital PCB.

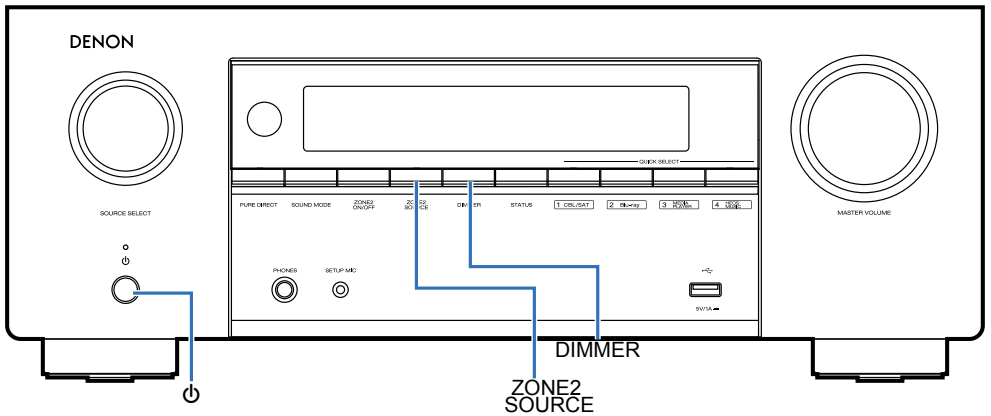
1. Press the power button to turn off the power.
2. While holding down buttons "**ZONE2 SOURCE**" and "**DIMMER**" simultaneously, press the power button to turn on the power.
3. Release the buttons after confirming that the display flashes at 1-second intervals.
   ∗ The unit is initialized.
   Use network initialization mode to initialize the network related settings.

NOTE :
- If the unit fails to enter the service mode in step 3, repeat the procedure from step 1.
- Initializing the device restores the customized settings to the factory settings. Write down your settings in advance and reconfigure the settings after initialization.

AVR-X3700H for E3, E1C, JP



AVC-X3700H for E2



JIG FOR SERVICING

Use the following jigs (extension cable kit) when repairing the PCBs.
Order with your dealer for the jigs your dealer if necessary.

8U-110084S : EXTENSION UNIT KIT : 1 Set
8U-110136S : EXTENSION UNIT KIT : 1 Set
9006391038105 : JIG 29P EXTENSION CABLE : 1 Set

(See JIG FOR SERVICING)

ELECTRICAL

SCHEMATIC DIAGRAMS

SCH01-1 DIG DIGITAL CONNECT OLD
SCH01-2 DIG DIGITAL CONNECT NEW
SCH02 DIG DIGITAL P.SUPPLY
SCH03-1 DIG MAIN CPU OLD
SCH03-2 DIG MAIN CPU NEW
SCH04 DIG EXPANDER
SCH05 DIG PROTECTION
SCH06 DIG DIR
SCH07-1 DIG AUDIO PLD OLD
SCH07-2 DIG AUDIO PLD NEW
SCH08 DIG DSP1
SCH09 DIG DSP2
SCH10-1 DIG ADC OLD
SCH10-2 DIG ADC NEW
SCH11 DIG ZONE2, D.MIX DAC
SCH12 DIG LEGO
SCH13 DIG VIDEO DECODER
SCH14 DIG HDMI SW2
SCH15 DIG HDMI SW1
SCH16 DIG VSP, DDR2 SDRAM
SCH17 DIG VIDEO PLD
SCH18 DIG HDMI TX
SCH19 INPUT INPUT
SCH20 INPUT PREOUT
SCH21 INPUT FHDMI
SCH22 VIDEO A-VIDEO
SCH23 VIDEO RC-5
SCH24 VIDEO RS232C, TRIGGER
SCH25 SIDE CNT
SCH26-1 F.CNT FRONT CNT OLD
SCH26-2 F.CNT FRONT CNT NEW
SCH27-1 F.CNT MAIN DAC1 OLD
SCH27-2 F.CNT MAIN DAC1 NEW
SCH28-1 F.CNT MAIN DAC2 OLD
SCH28-2 F.CNT MAIN DAC2 NEW
SCH29 SPK SPK
SCH30 SPK REGULATOR
SCH31 AMP 5CH AMP
SCH32 AMP 4CH AMP
SCH33 FRONT
SCH34 SMPS

PRINTED CIRCUIT BOARDS

DIGITAL OLD
DIGITAL NEW
INPUT
VIDEO, SIDE CNT, FRONT CONT FFC
SPK, SPK H2L, GUIDE TRANS, GUIDE SIDE
5CH AMP, 4CH AMP
FRONT, USB
FRONT CNT OLD, FRONT CNT NEW, TUNER, BKT, SMPS

LEVEL DIAGRAM

FRONT ch
SUBWOOFER ch
CENTER/SURROND/ASSIGN1/2 (SURROUND BACK/HEIGHT1/HEIGHT2) ch
ZONE2 ch

BLOCK DIAGRAM

ANALOG AUDIO DIAGRAM
DIGITAL AUDIO DIAGRAM OLD
DIGITAL AUDIO DIAGRAM NEW
VIDEO DIAGRAM
HDMI DIAGRAM

POWER DIAGRAM

WIRING DIAGRAM

SEMICONDUCTORS

1. IC's
2. FL DISPLAY
3. Remote Code Table

SCHEMATIC DIAGRAMS

⚠2 SCH01-1 DIG DIGITAL CONNECT OLD

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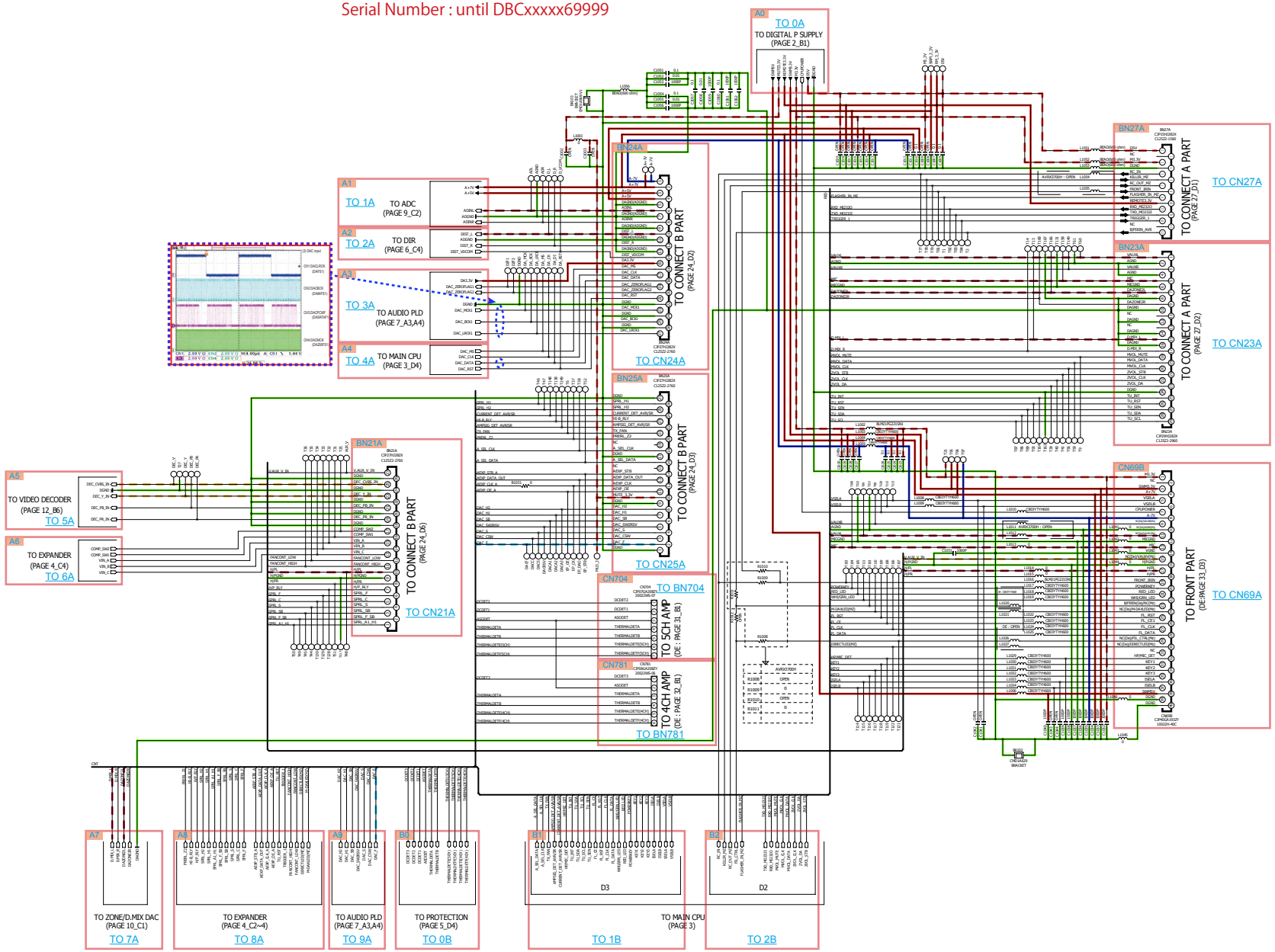
Serial Number : until DBCxxxxx69999



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH01-2 DIG DIGITAL CONNECT NEW

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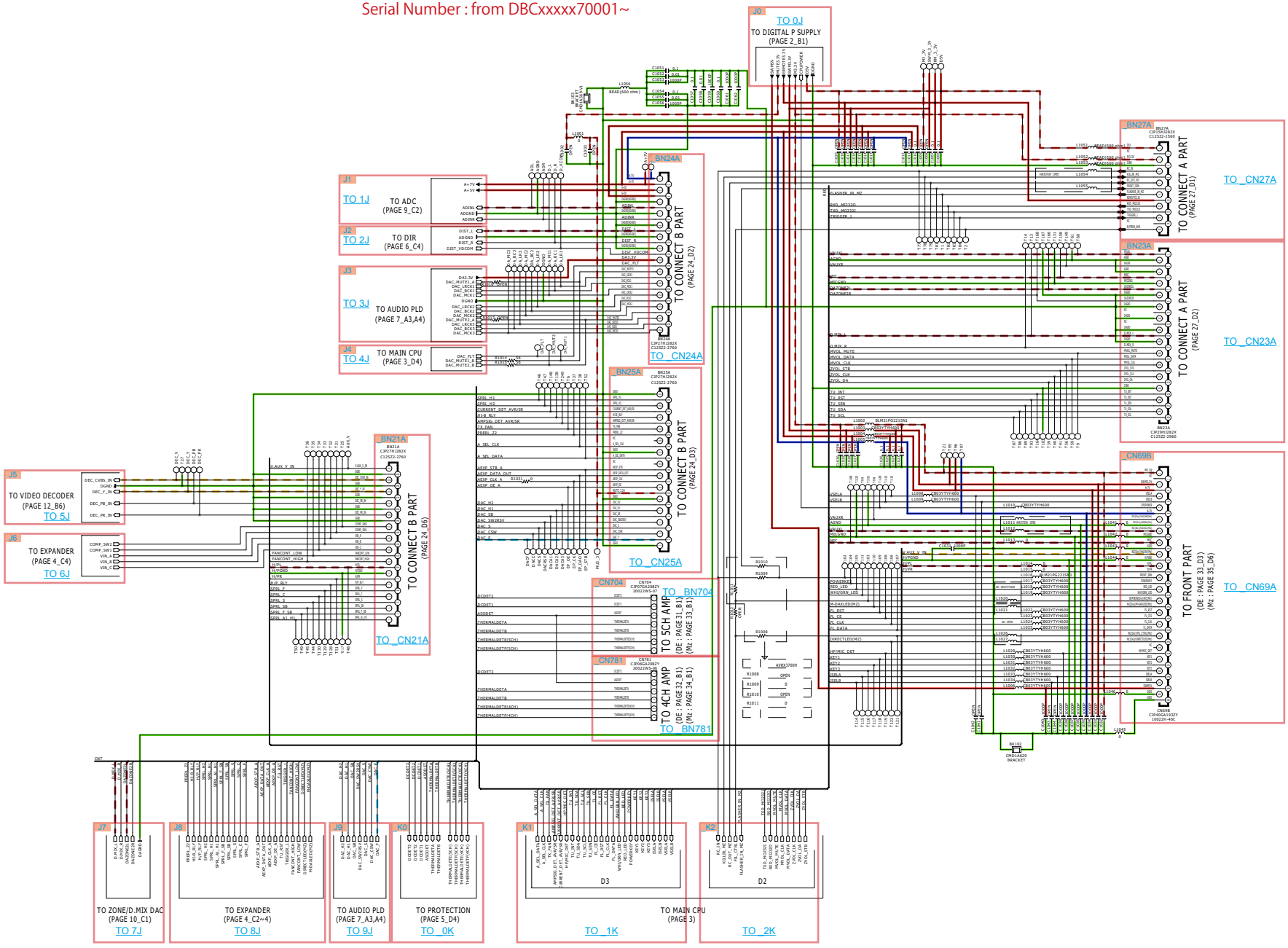
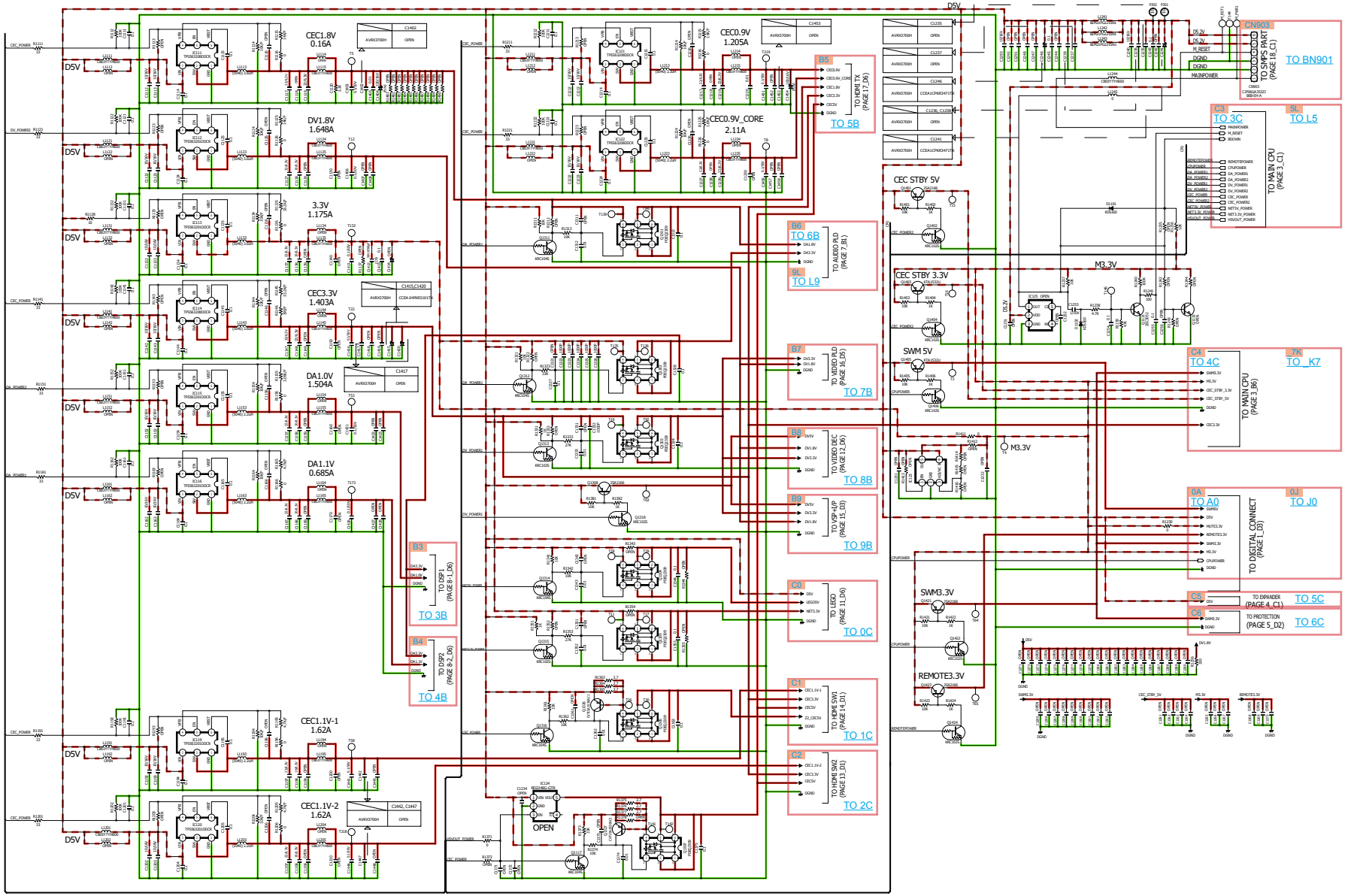


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH02 DIG DIGITAL P.SUPPLY



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH03-1 DIG MAIN CPU OLD

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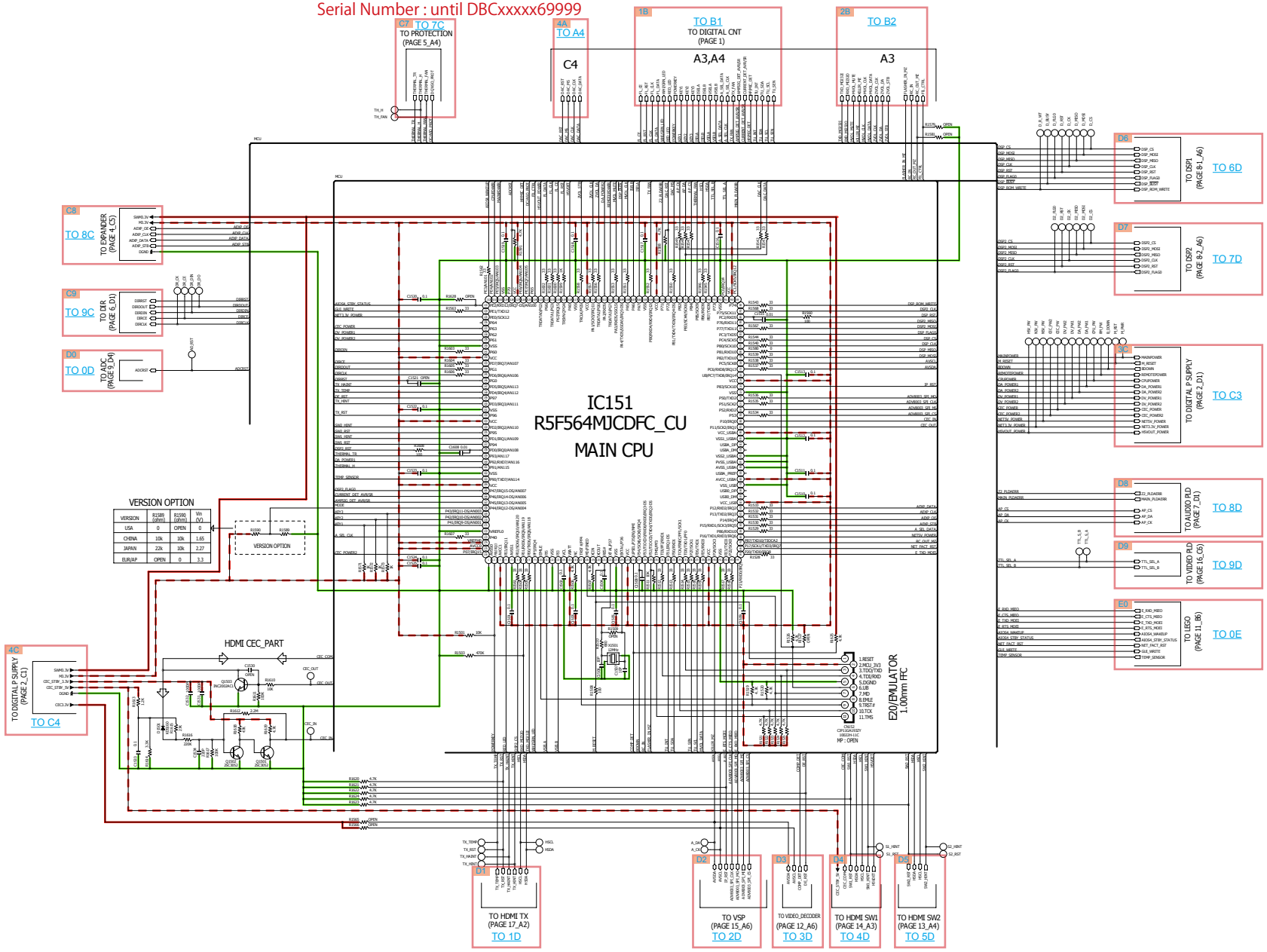

GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠ SCH03-2 DIG MAIN CPU NEW

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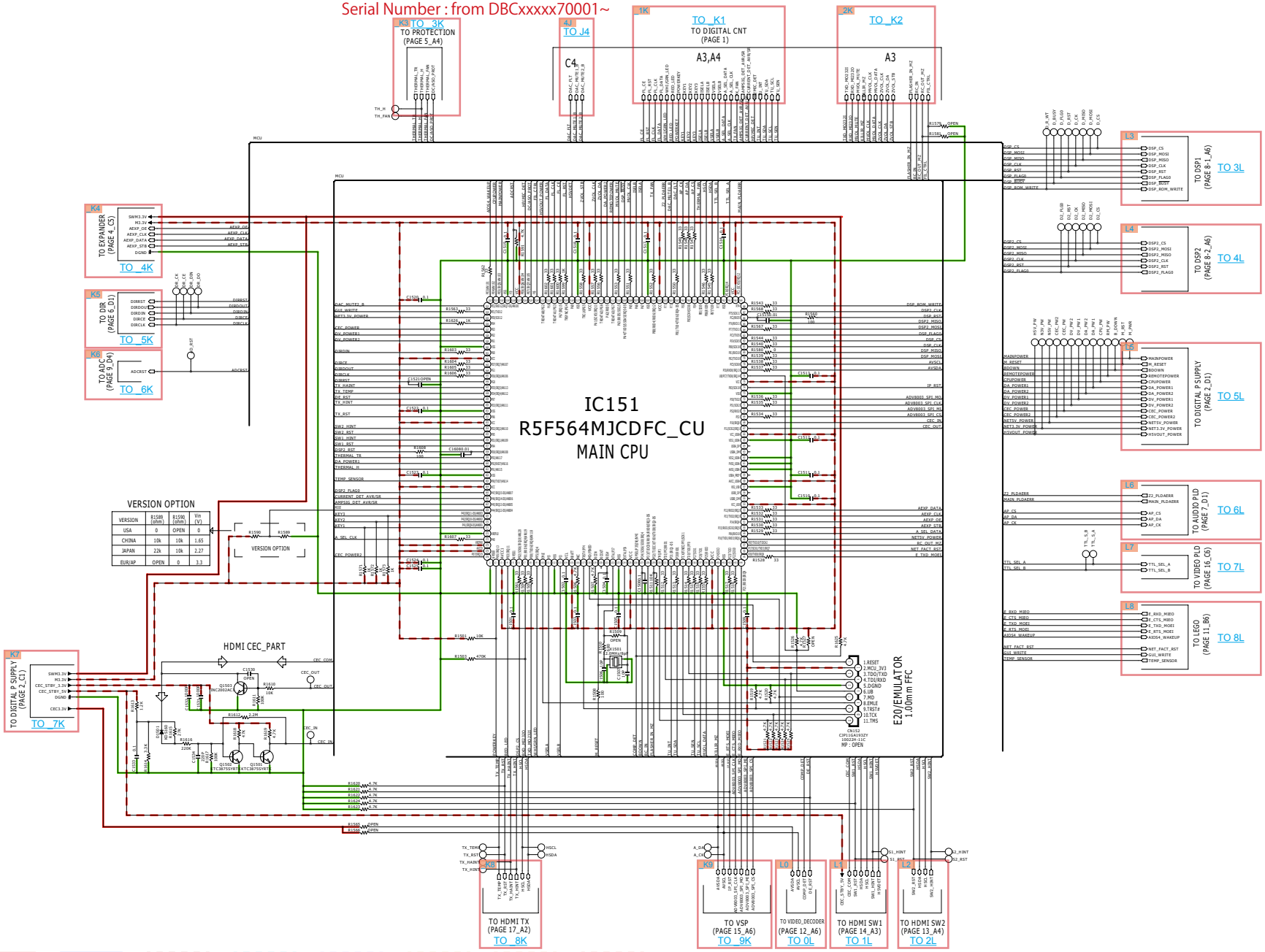
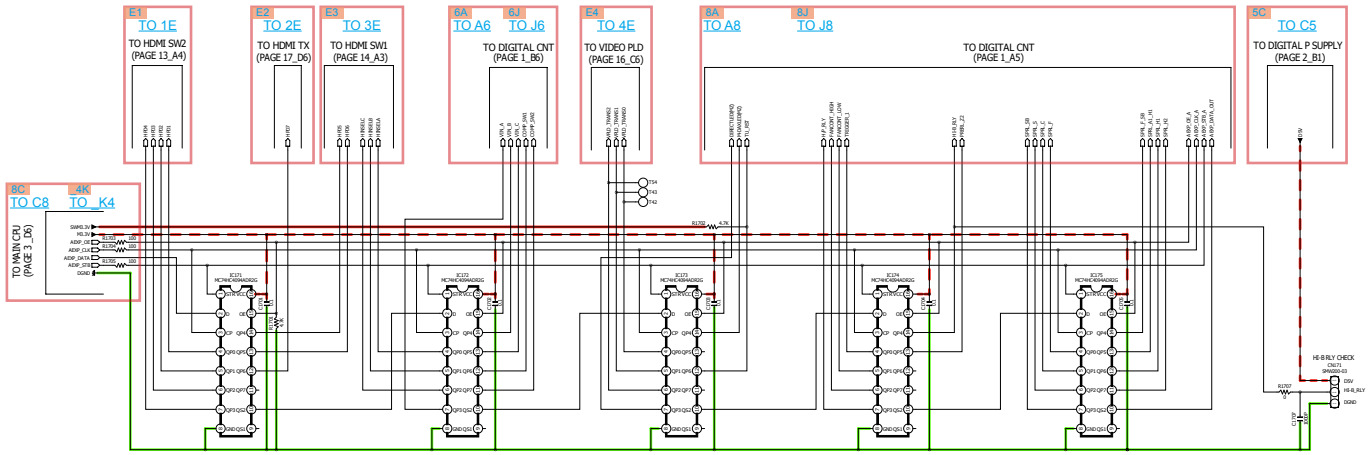


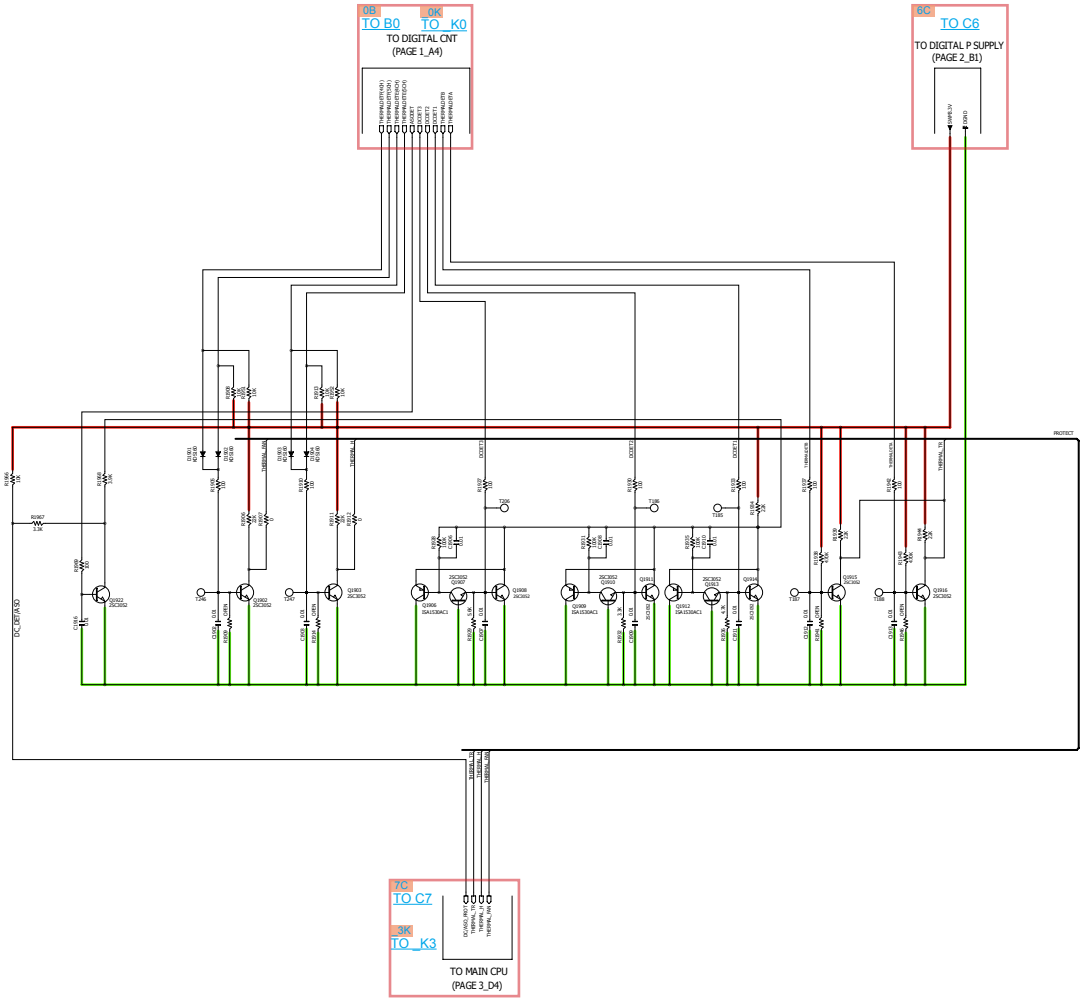
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH04 DIG EXPANDER



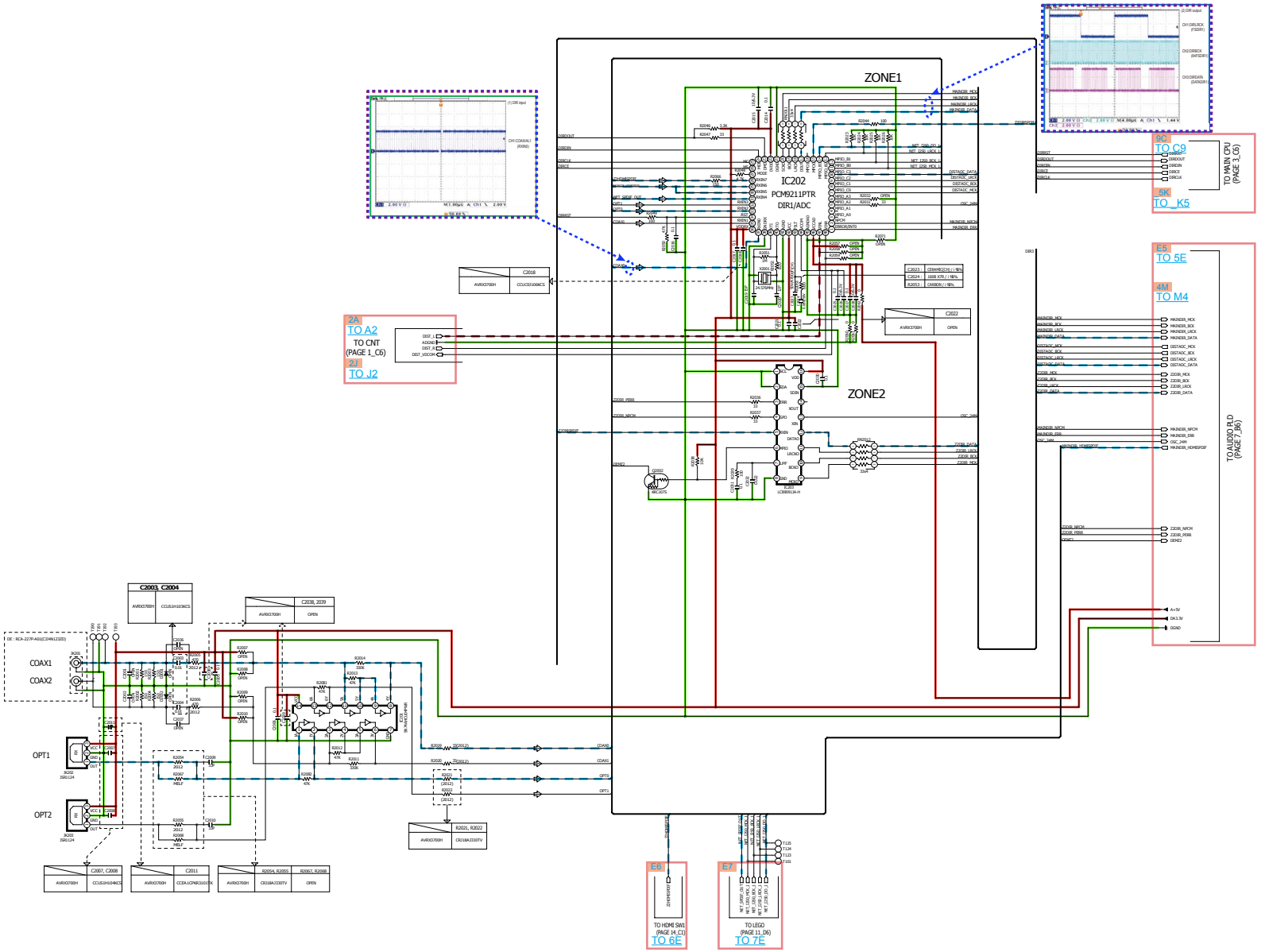
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

SCH05 DIG PROTECTION



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH06 DIG DIR



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH07-1 DIG AUDIO PLD OLD

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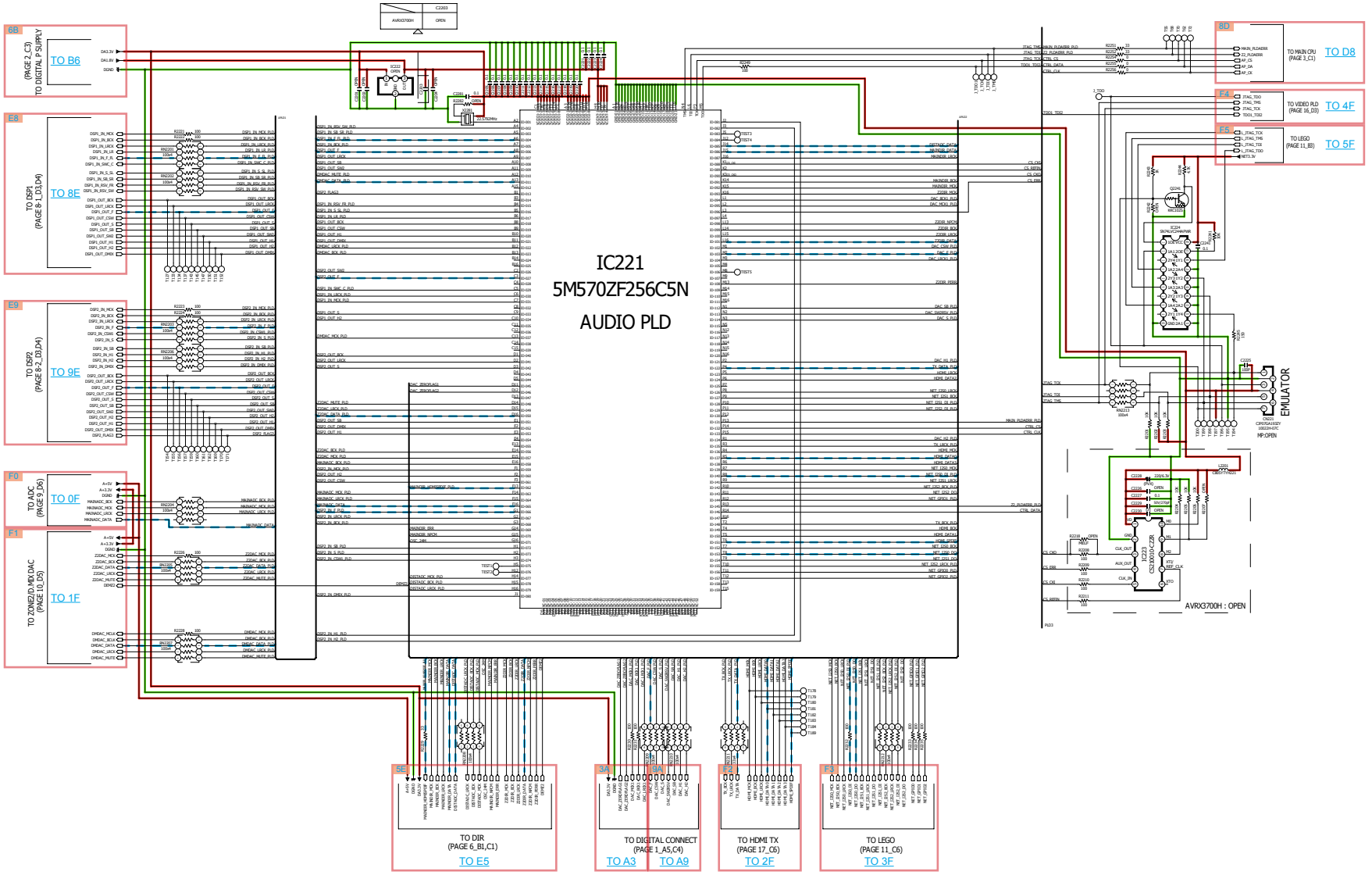

GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH07-2 DIG AUDIO PLD NEW

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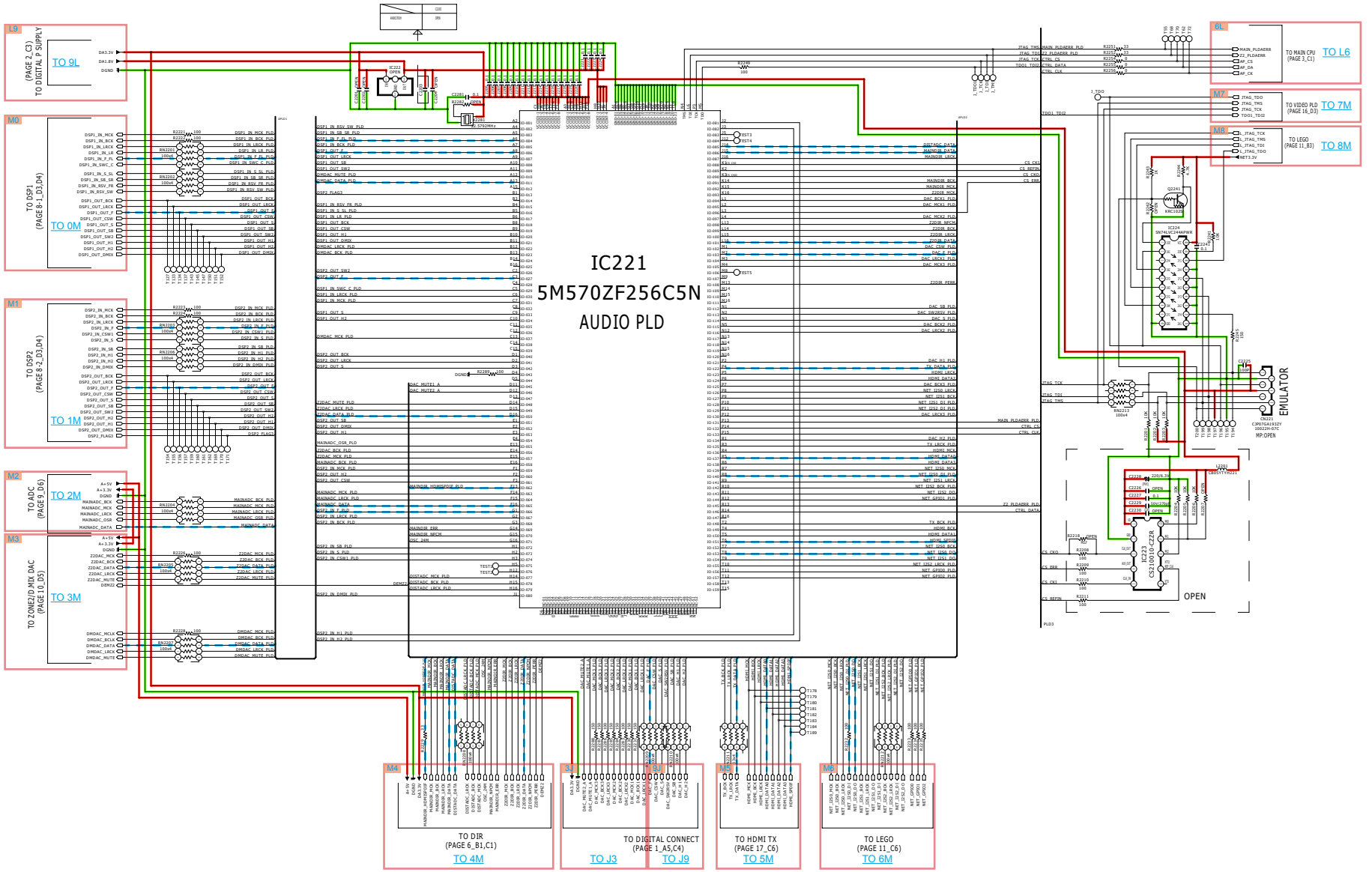
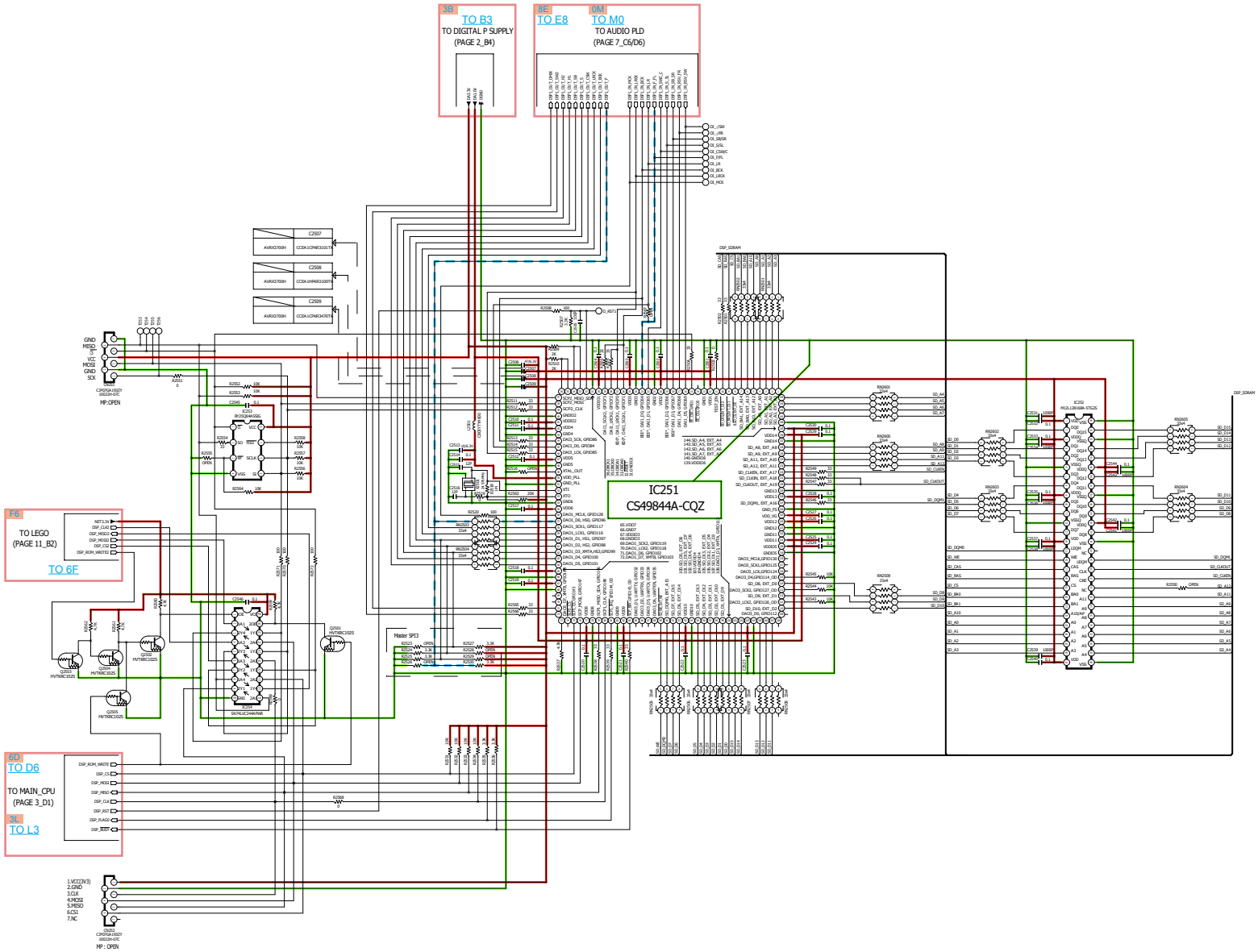


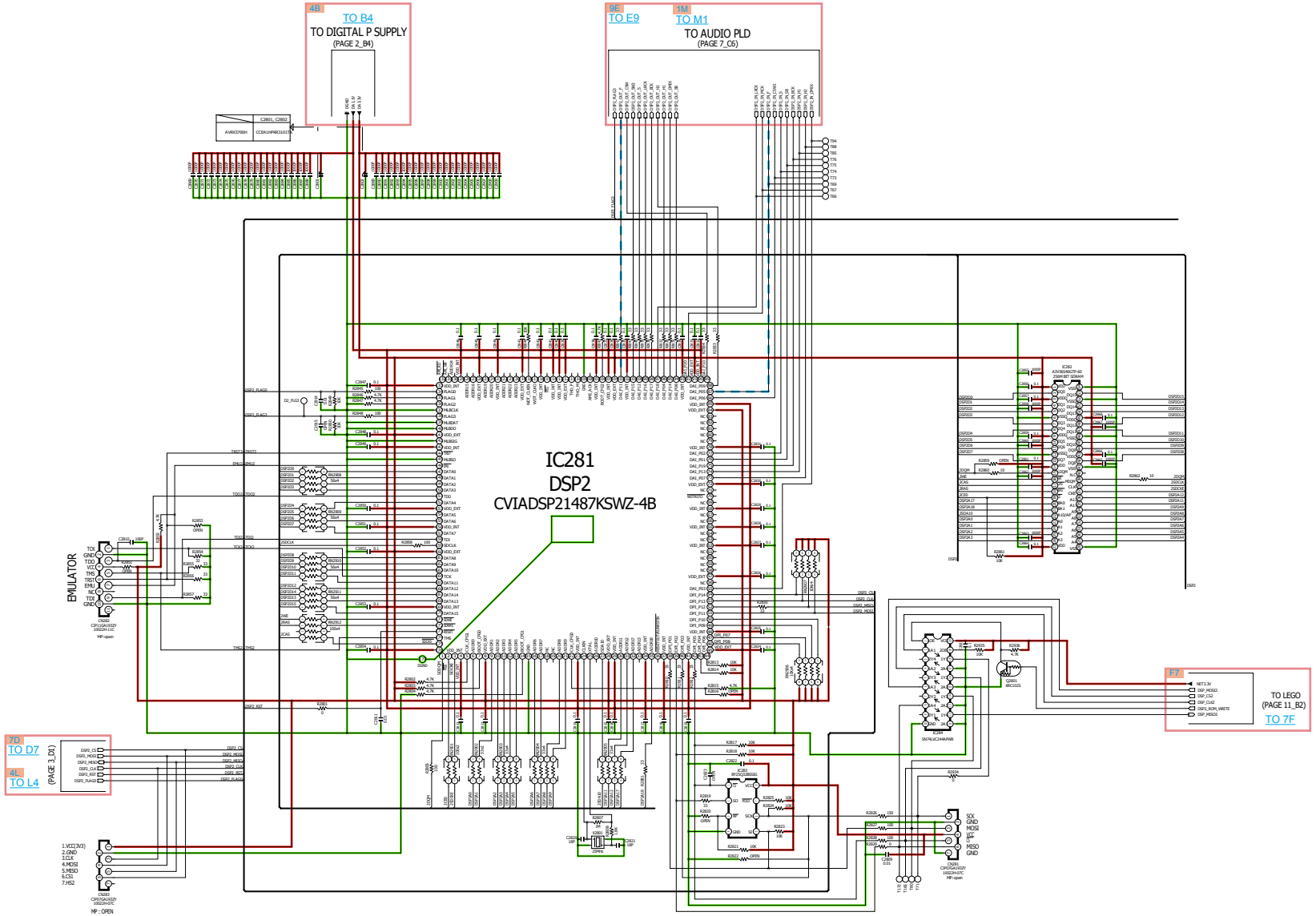
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH08 DIG DSP1



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH09 DIG DSP2



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH10-1 DIG ADC OLD

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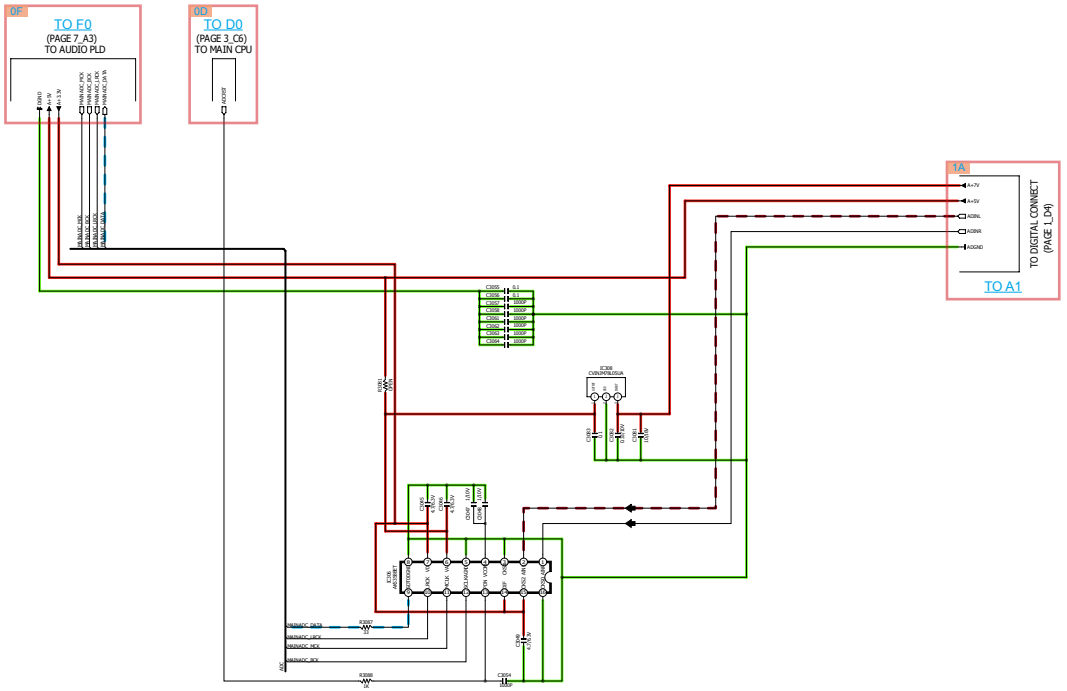

GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH10-2 DIG ADC NEW

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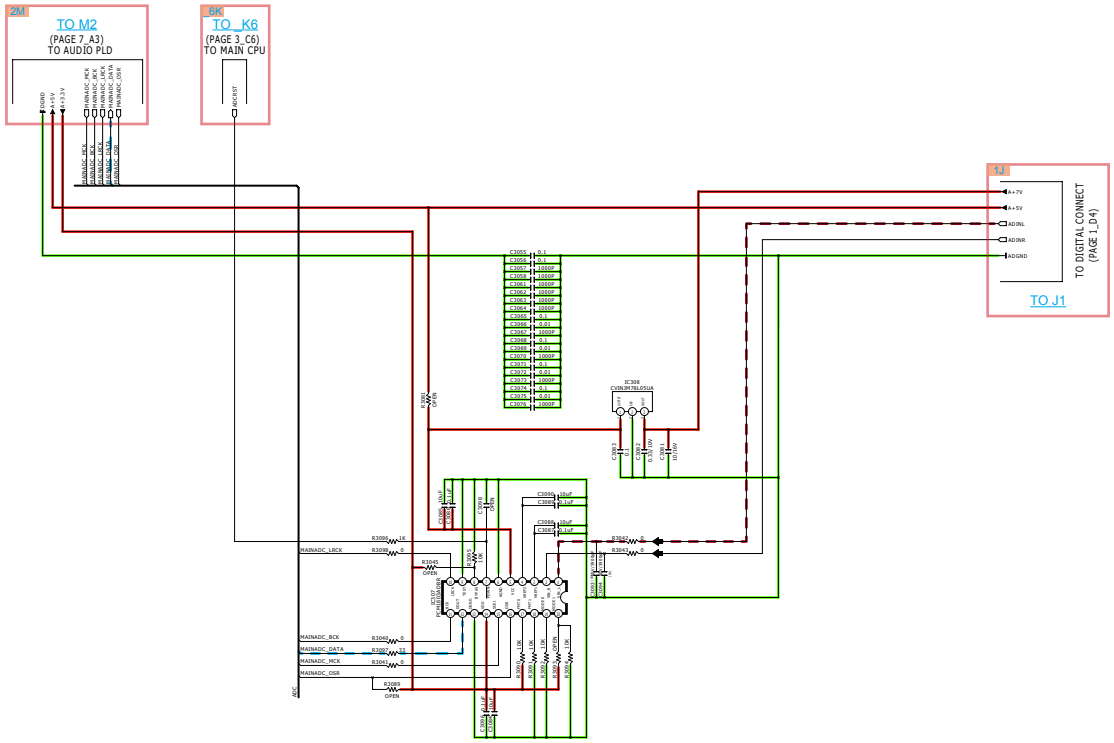
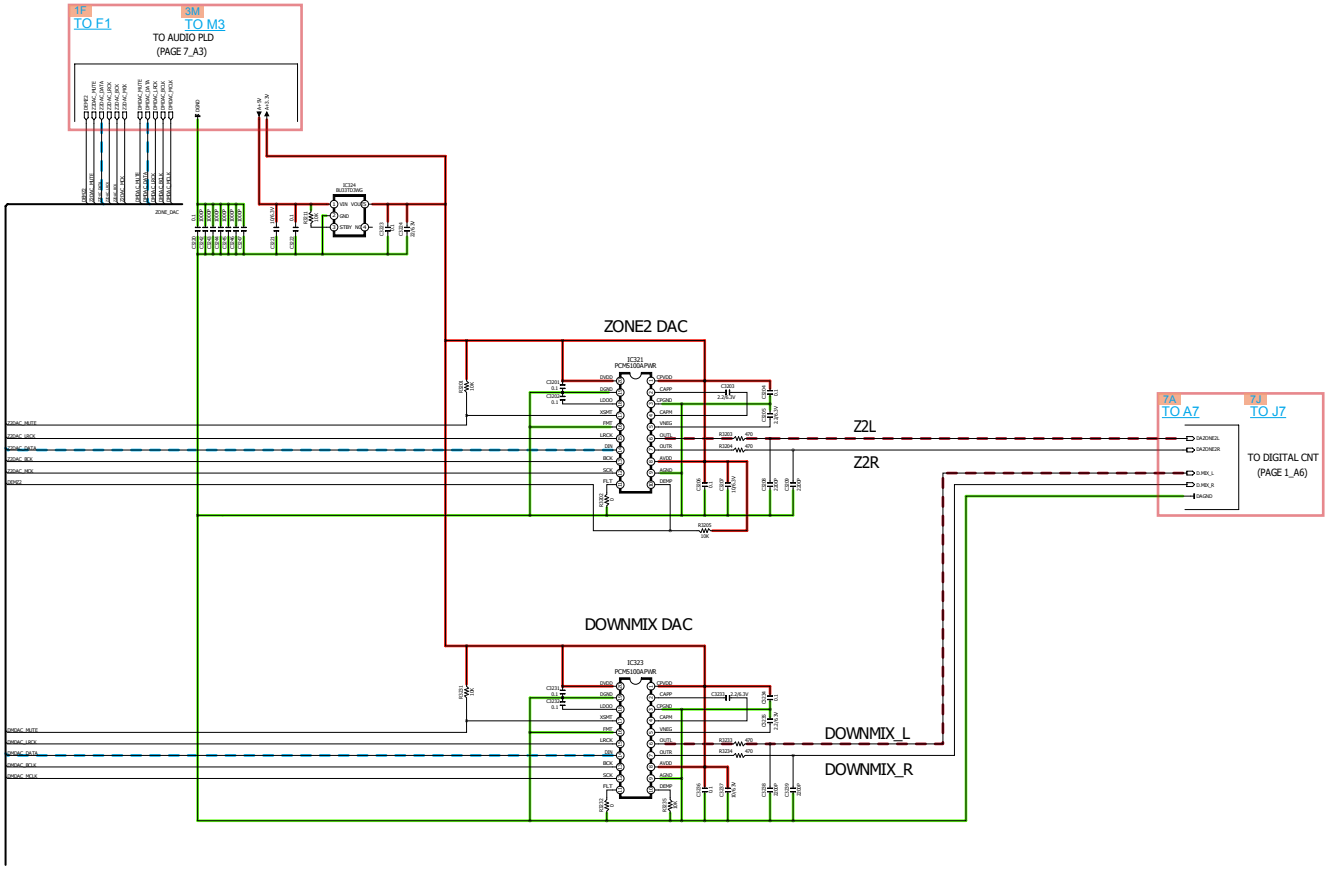
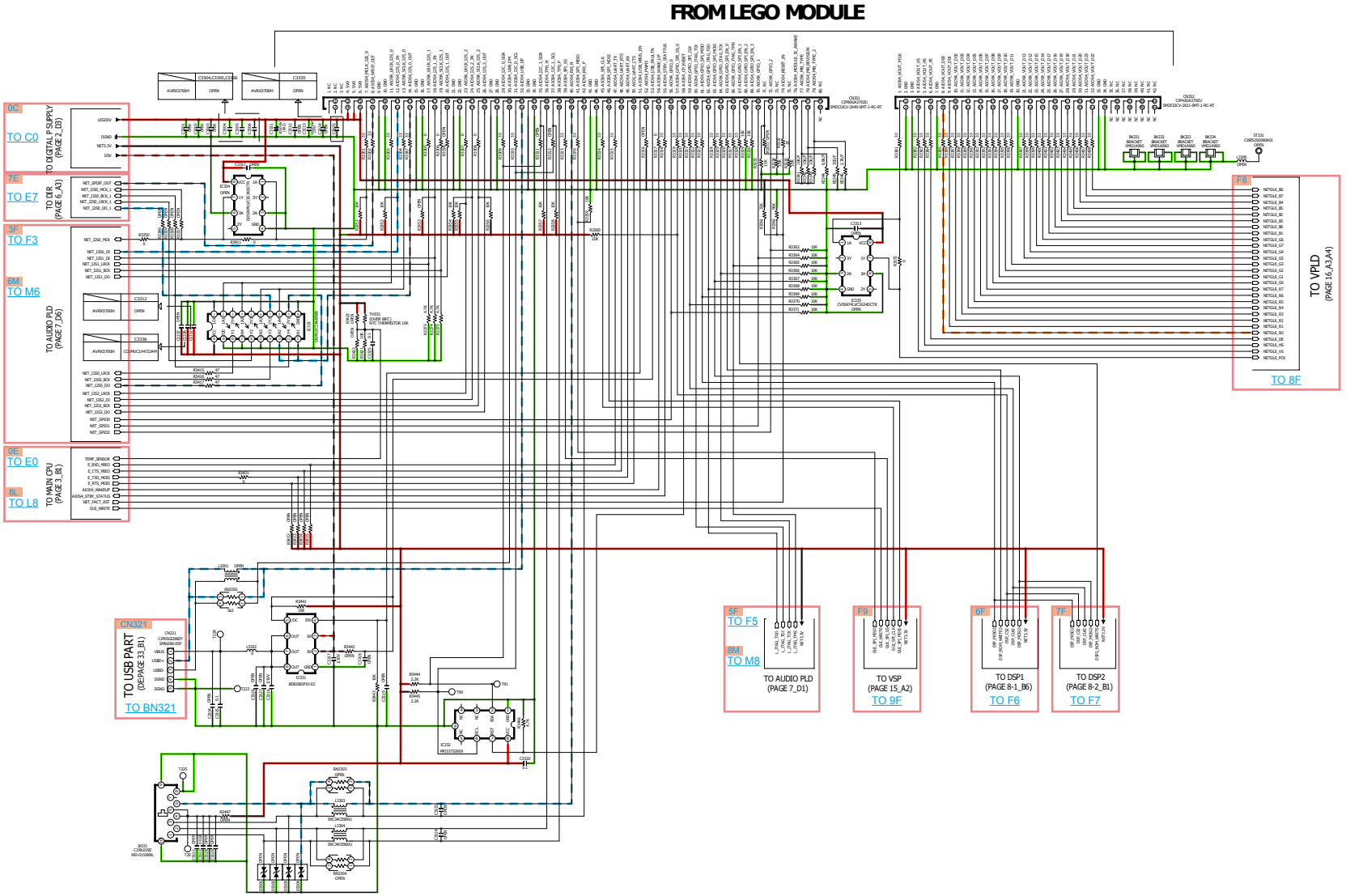


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH11 DIG ZONE2, D.MIX DAC

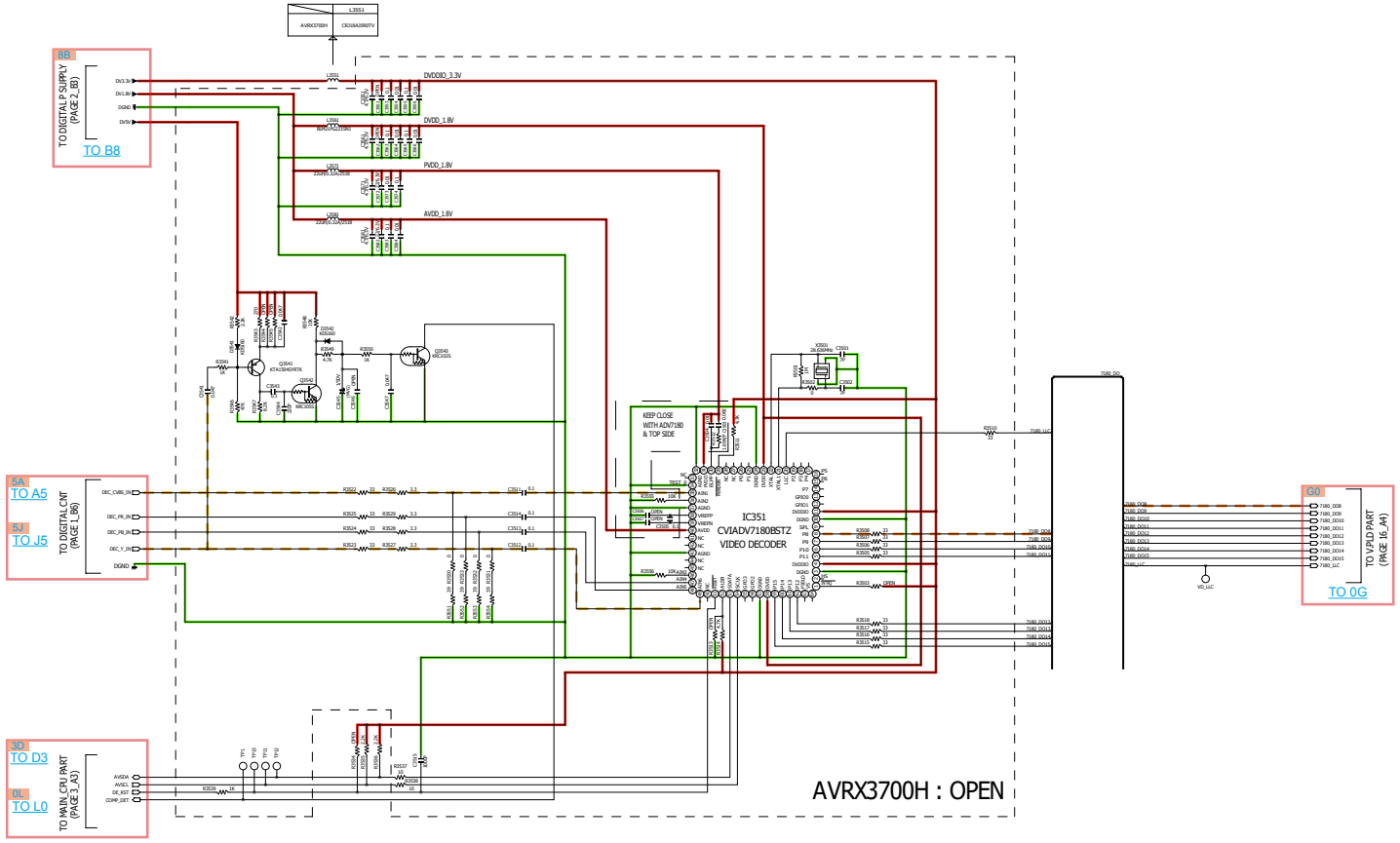


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER



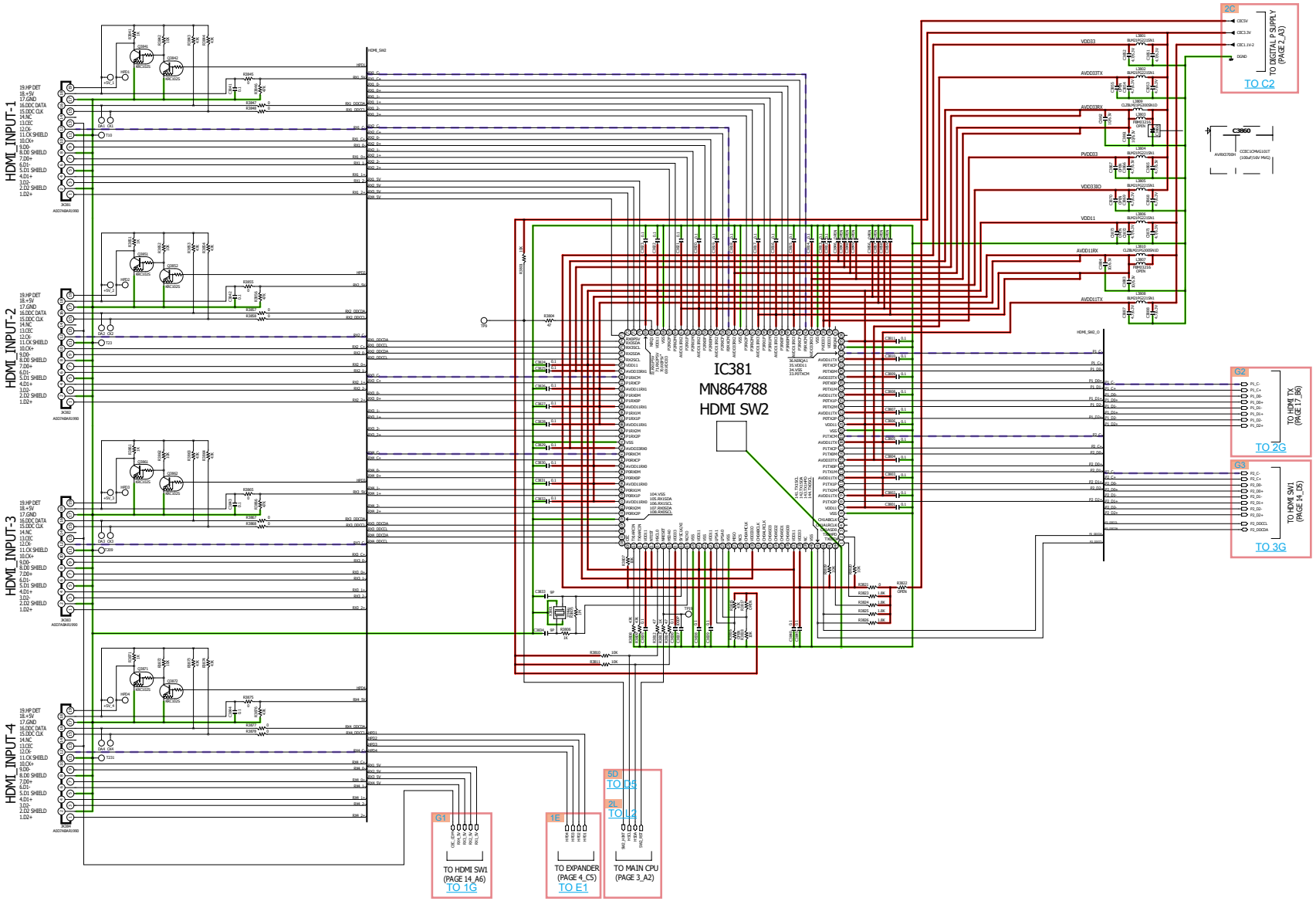
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH13 DIG VIDEO DECODER



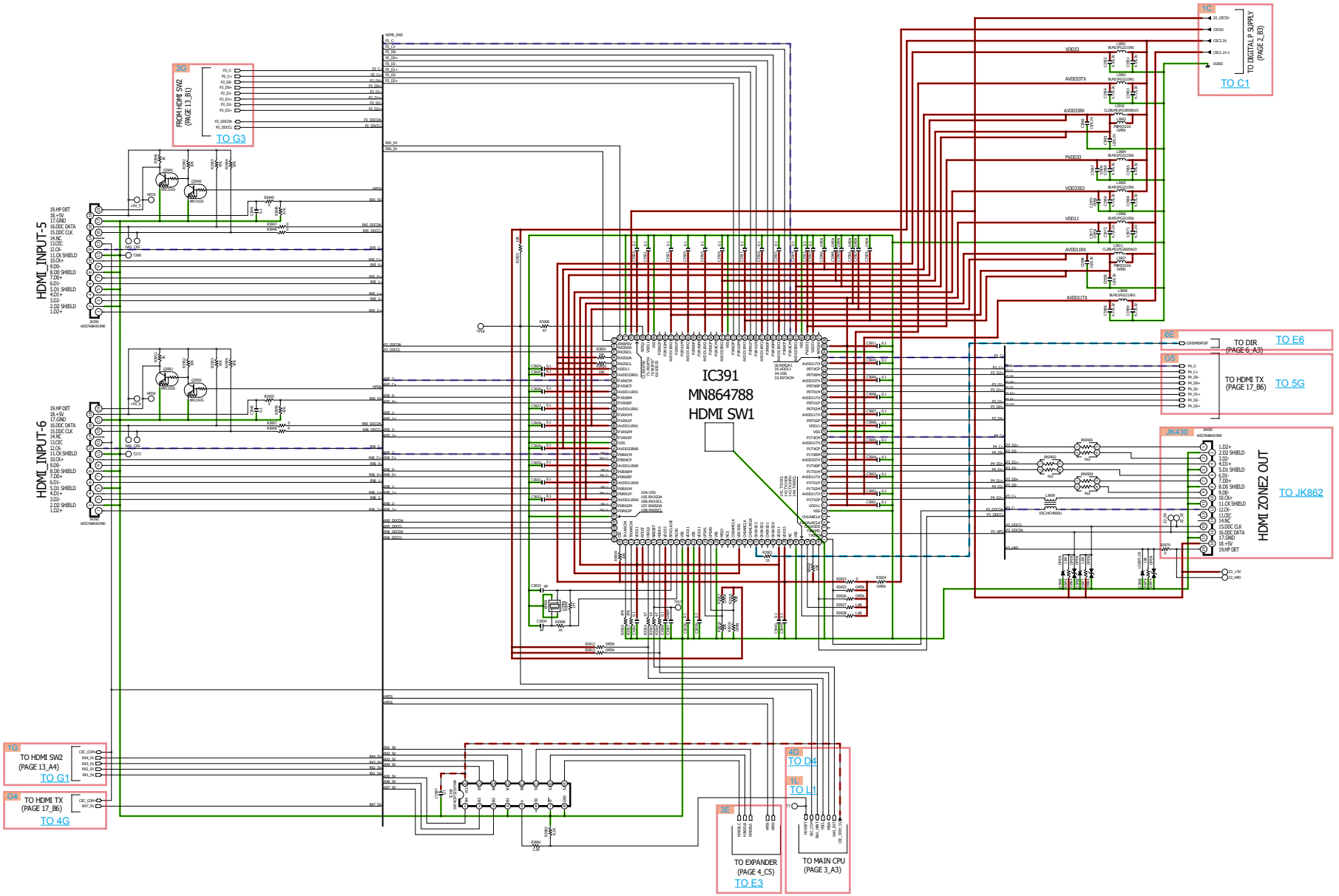
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

SCH14 DIG HDMI SW2



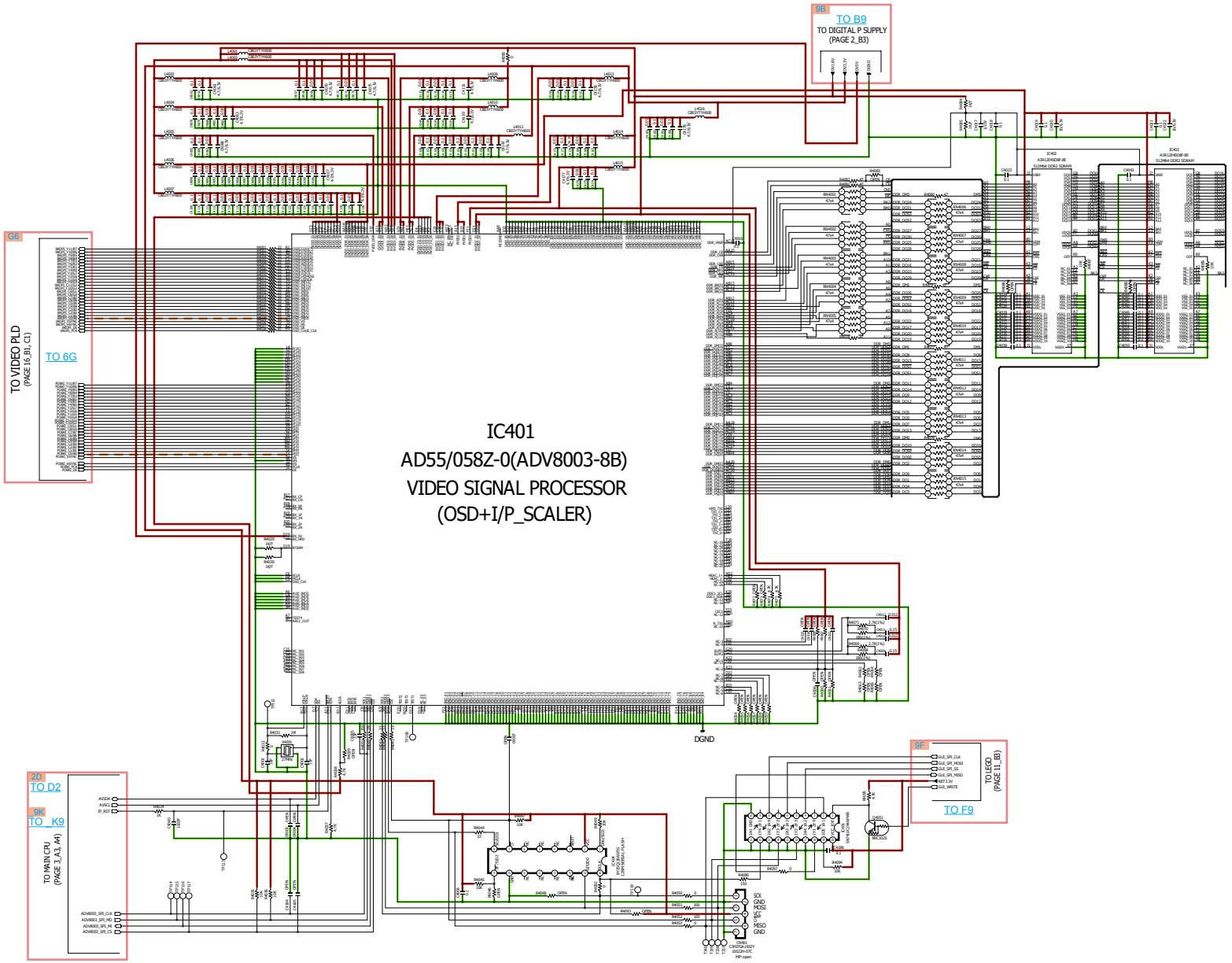
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH15 DIG HDMI SW1



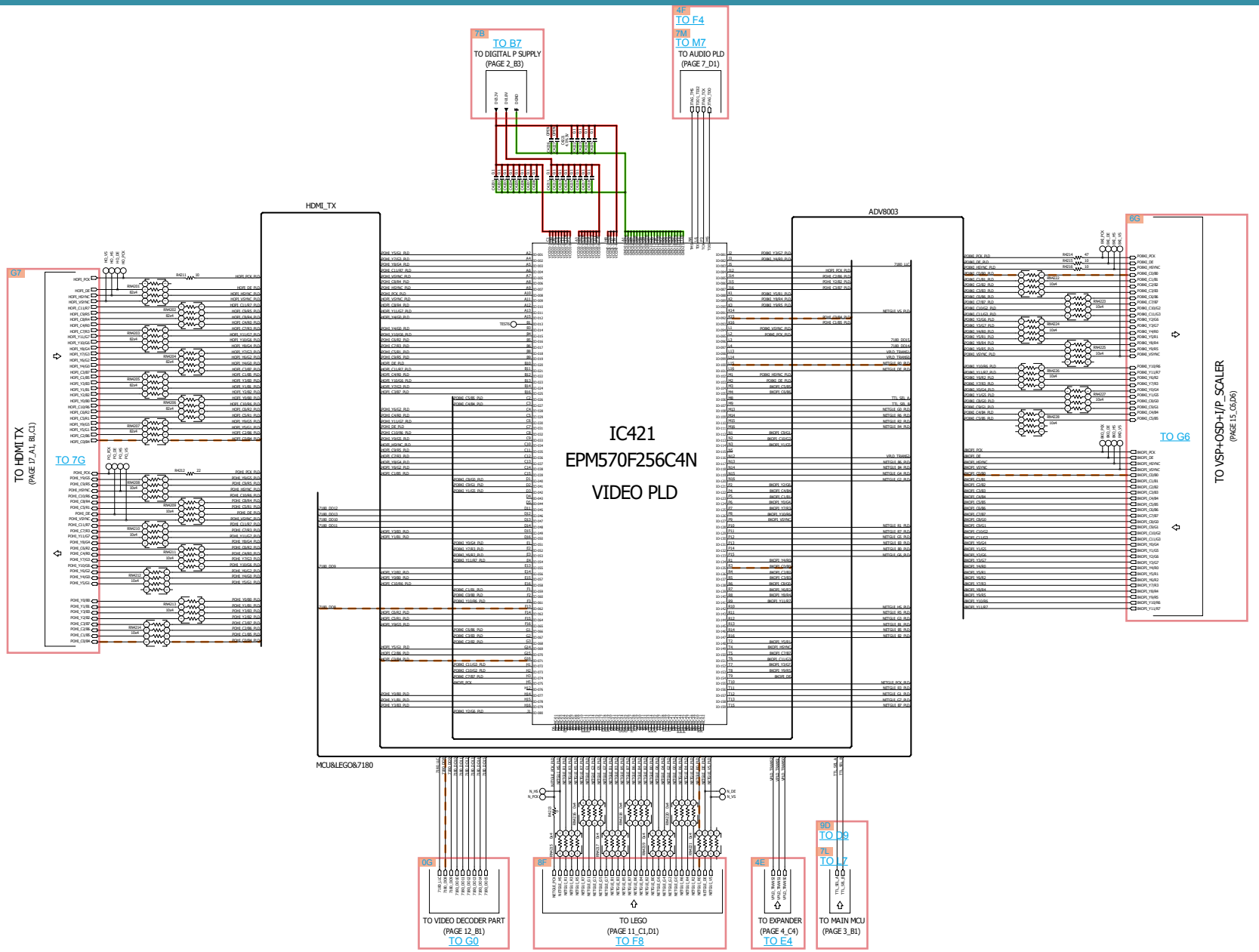
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

SCH16 DIG VSP, DDR2 SDRAM

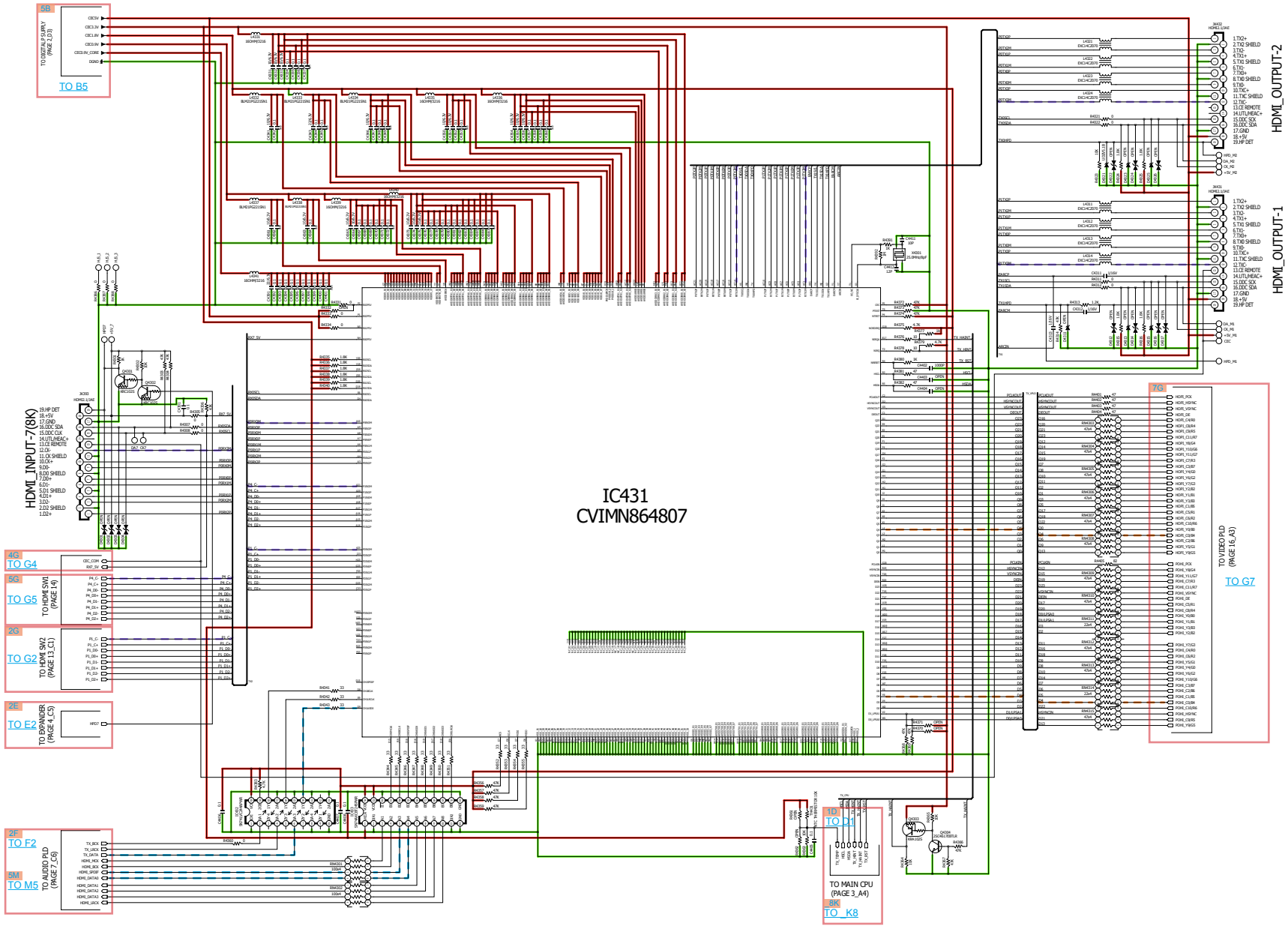


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

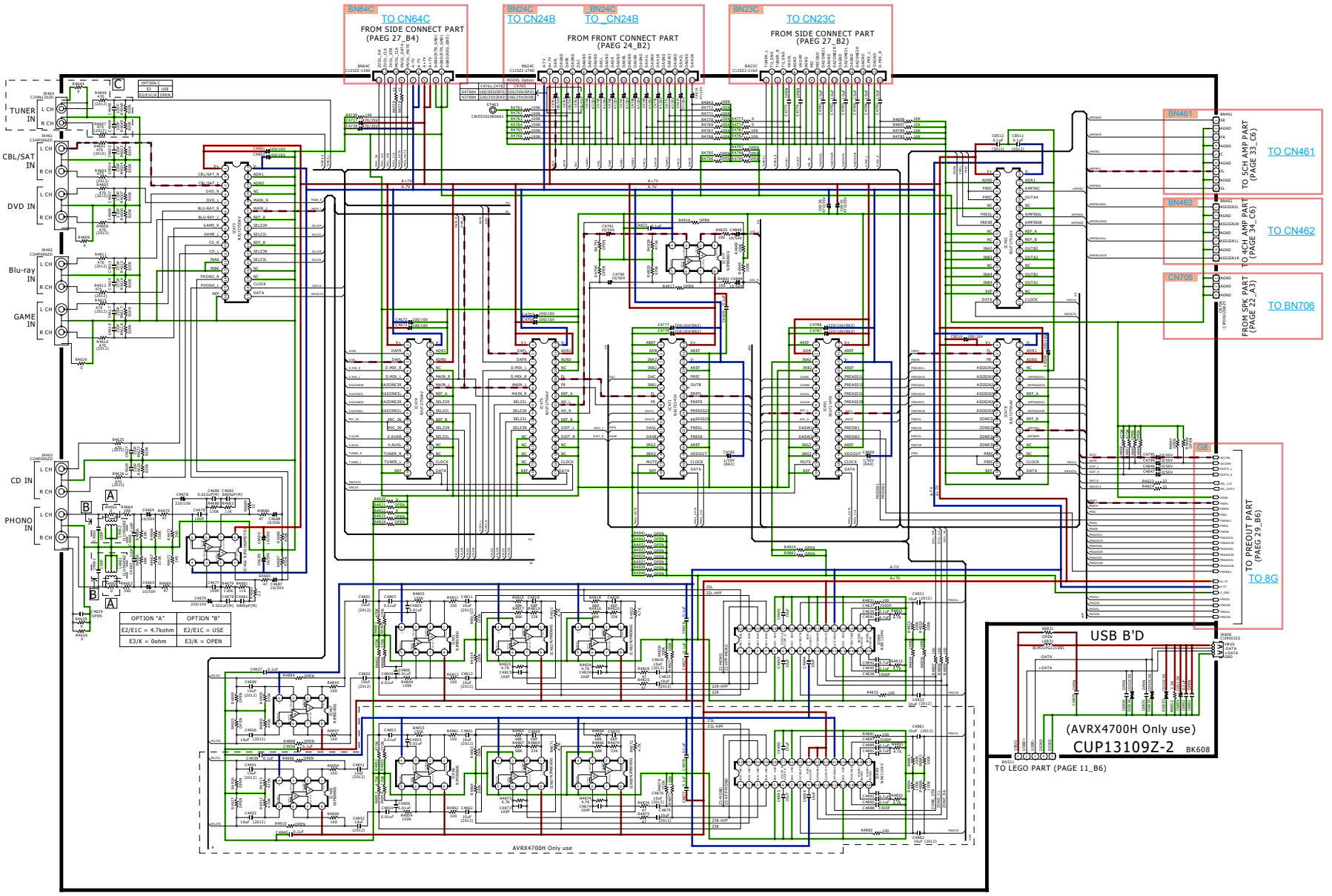
SCH17 DIG VIDEO PLD



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

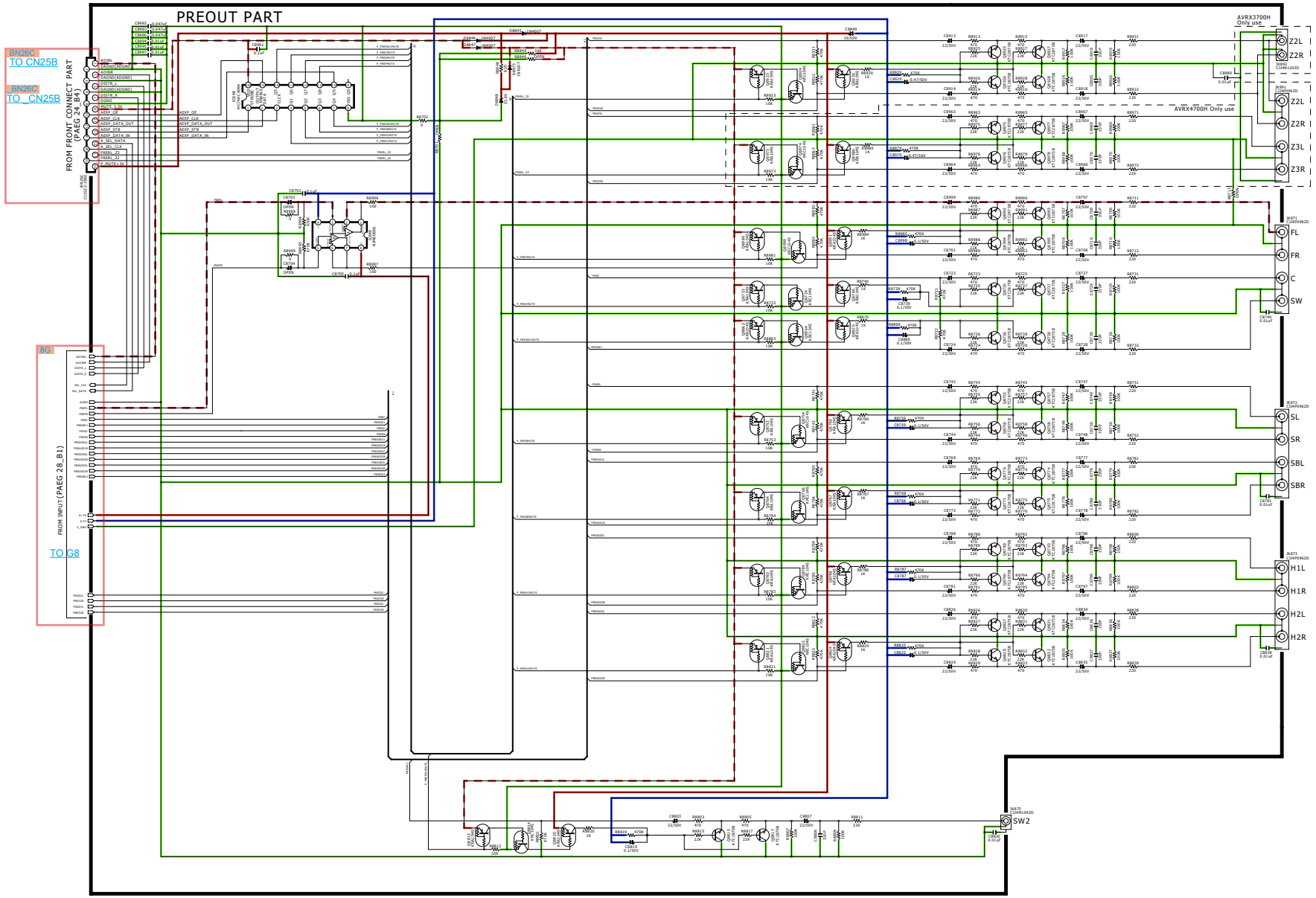


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

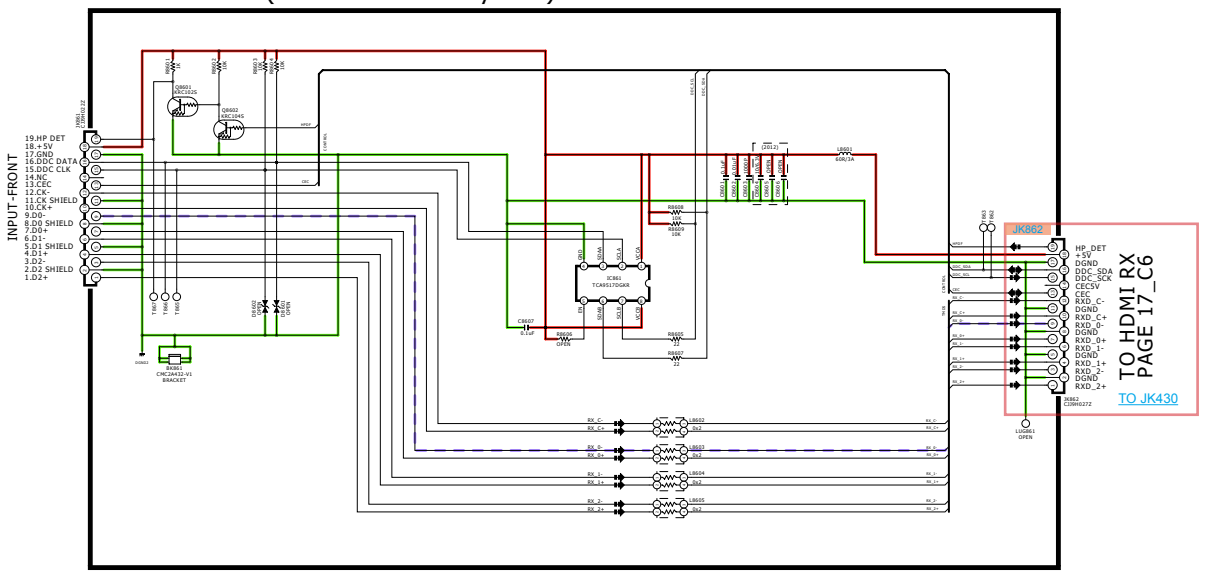
SCH20 INPUT PREOUT



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

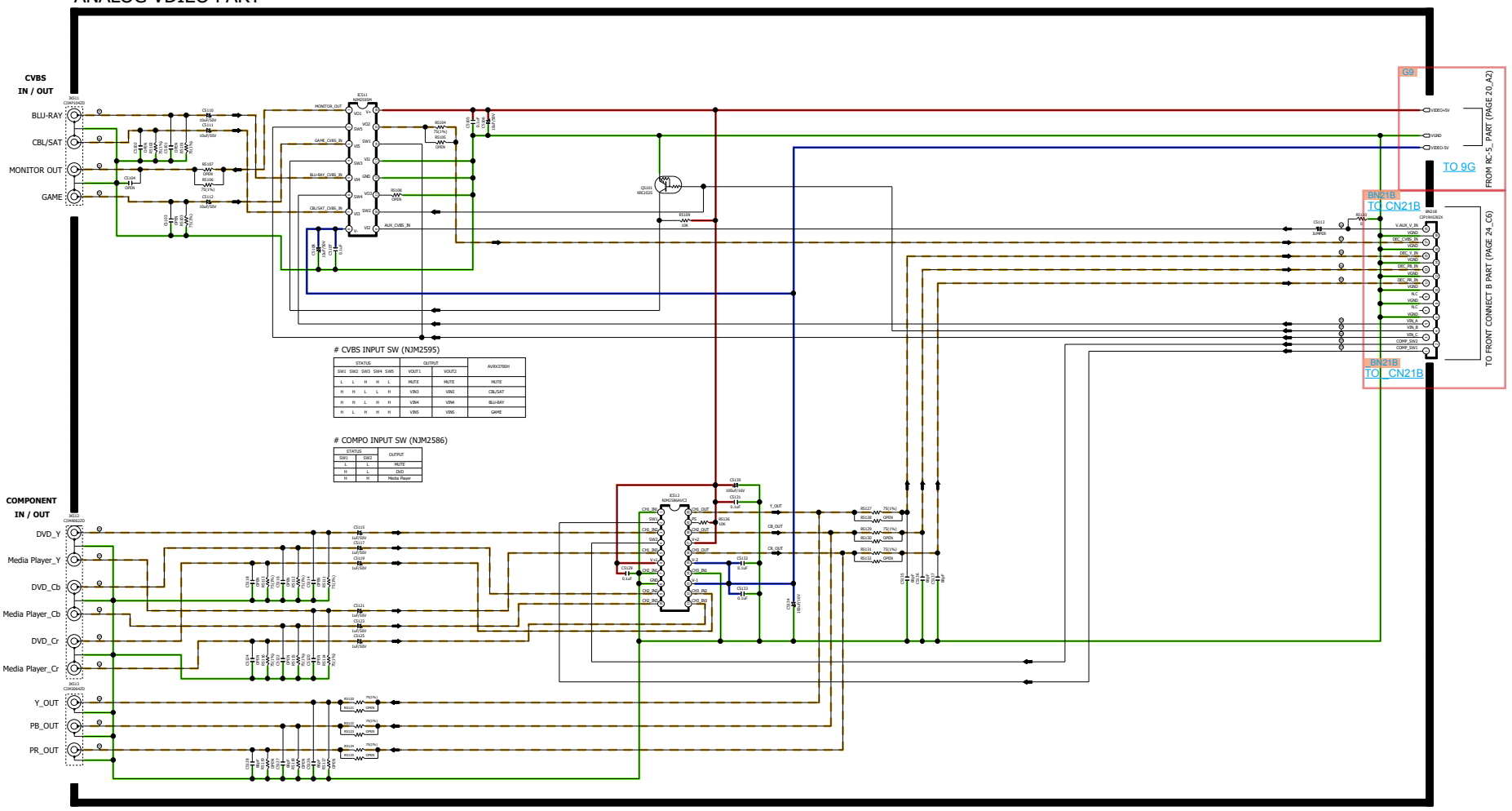
SCH21 INPUT FHDMI

FRONT HDMI (AVRX4700H Only use)

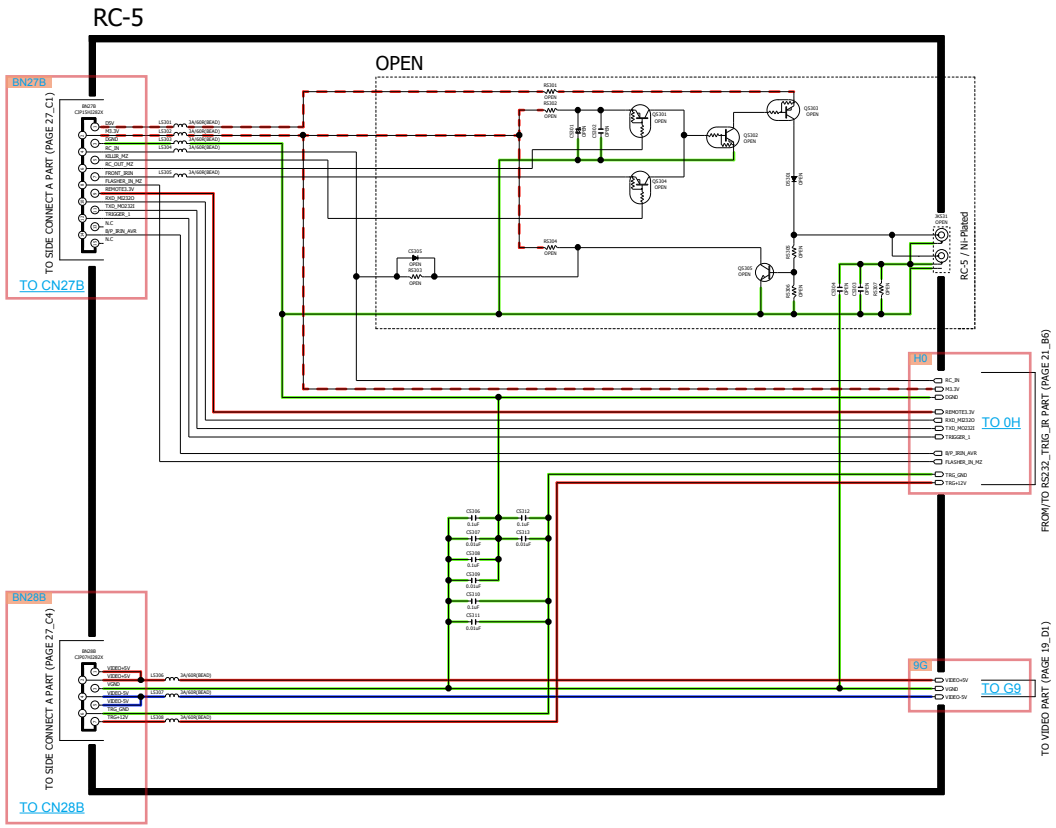


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

ANALOG VDIEO PART



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

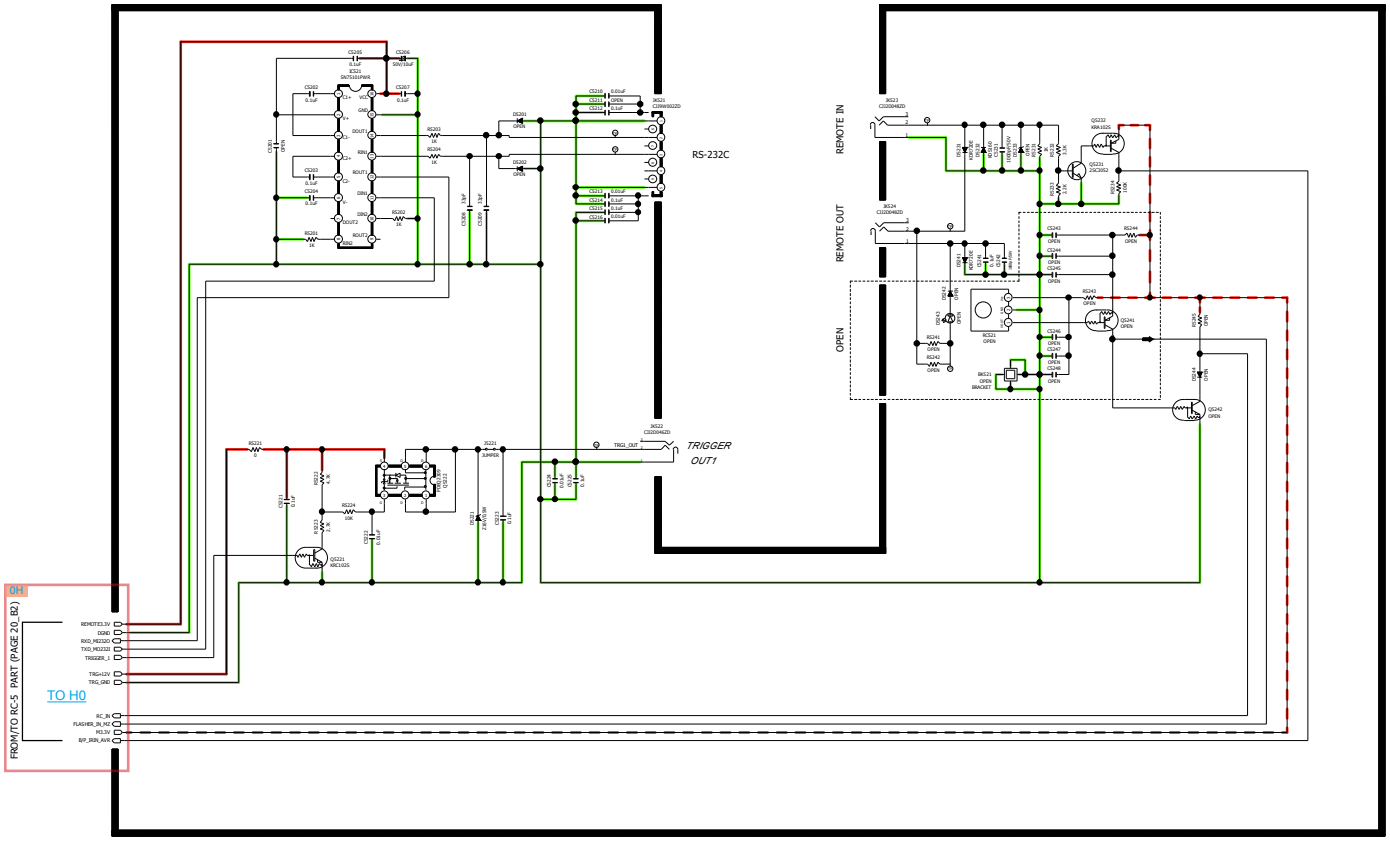


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

SCH24 VIDEO RS232C, TRIGGER

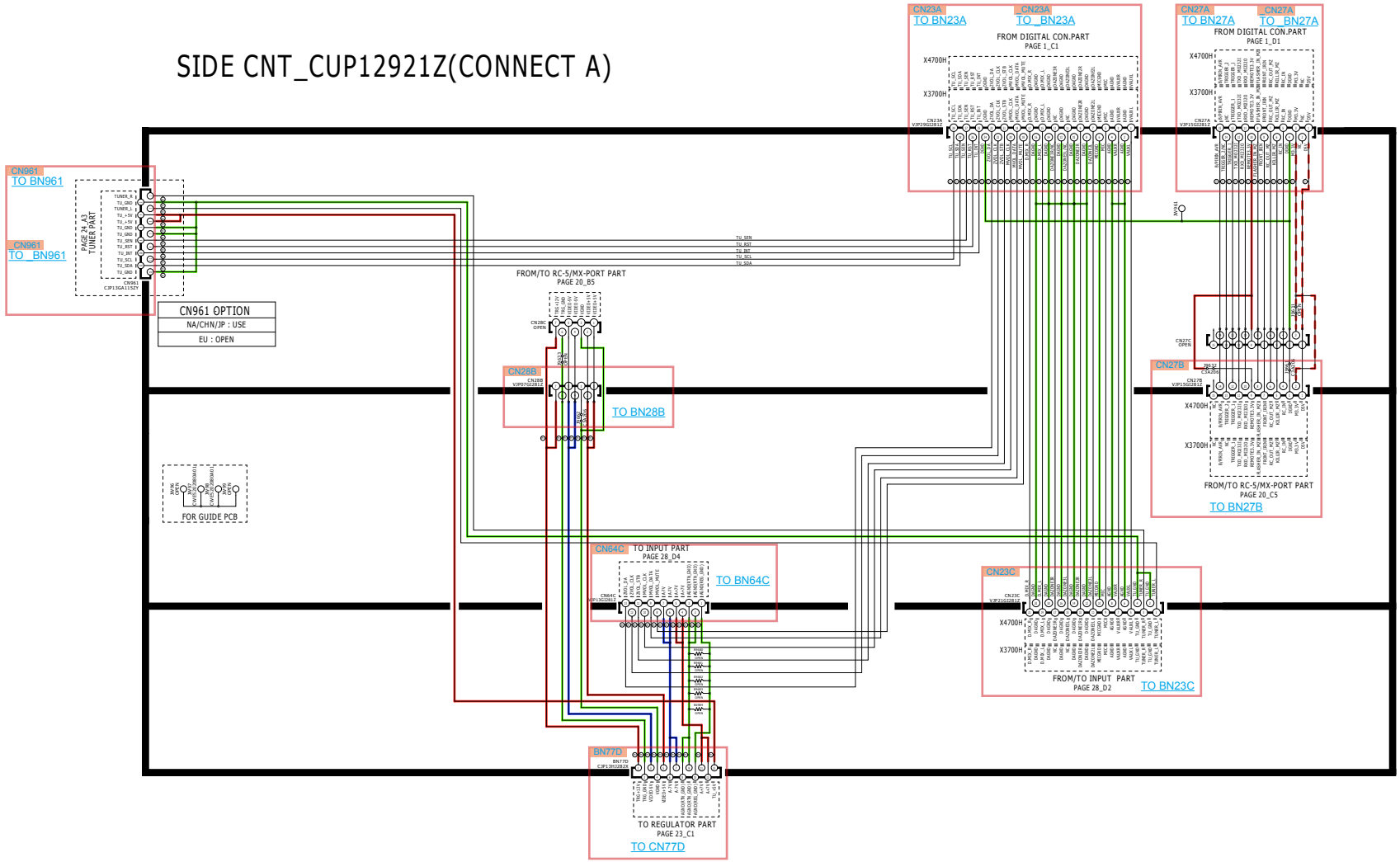
RS232C/TRIGGER

IR / FLASHER



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

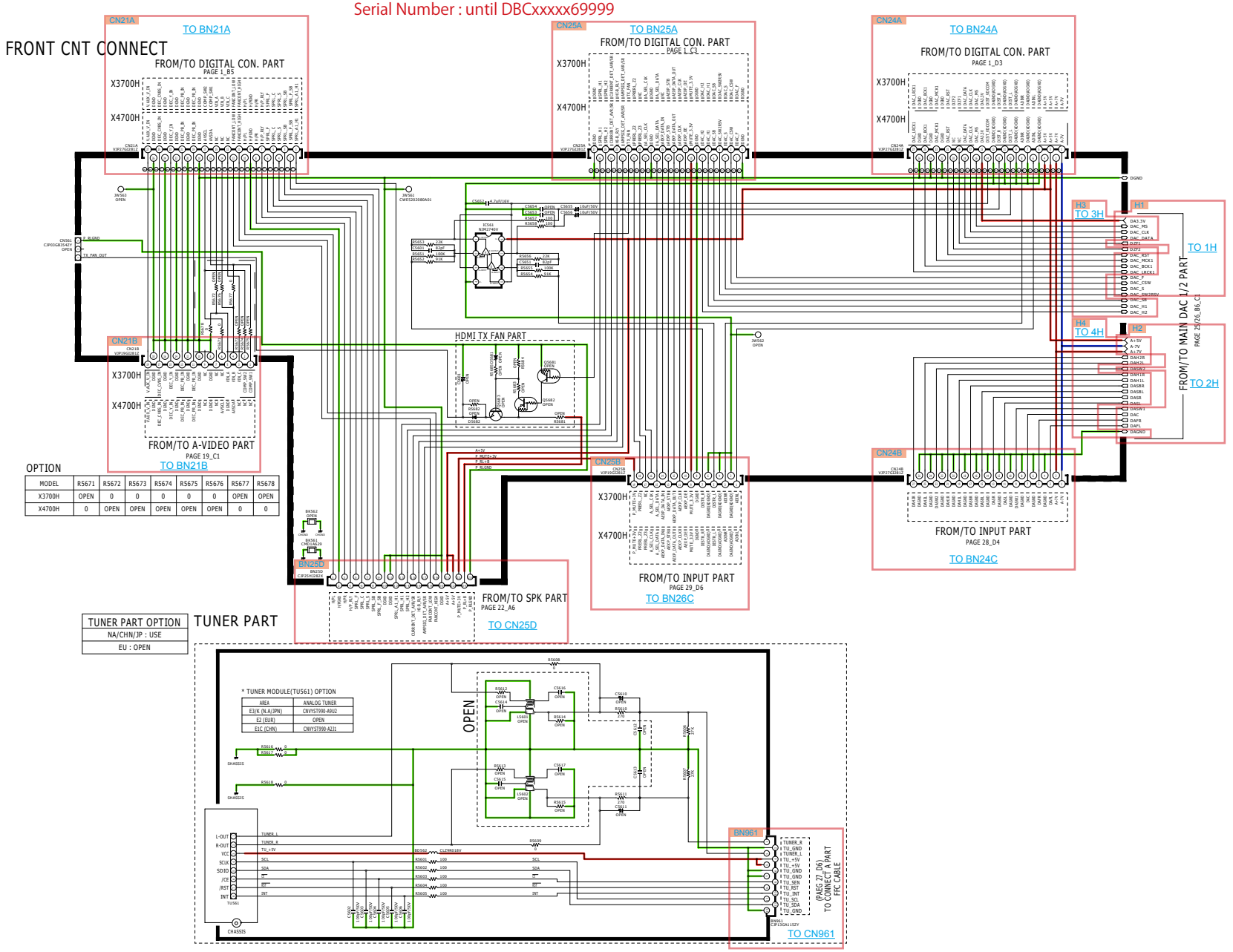
SIDE CNT_CUP12921Z(CONNECT A)



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH26-1 F.CNT FRONT CNT OLD

This SCHEMATIC DIAGRAMS describes the product with the following serial No.
Serial Number : until DBCxxxxx69999



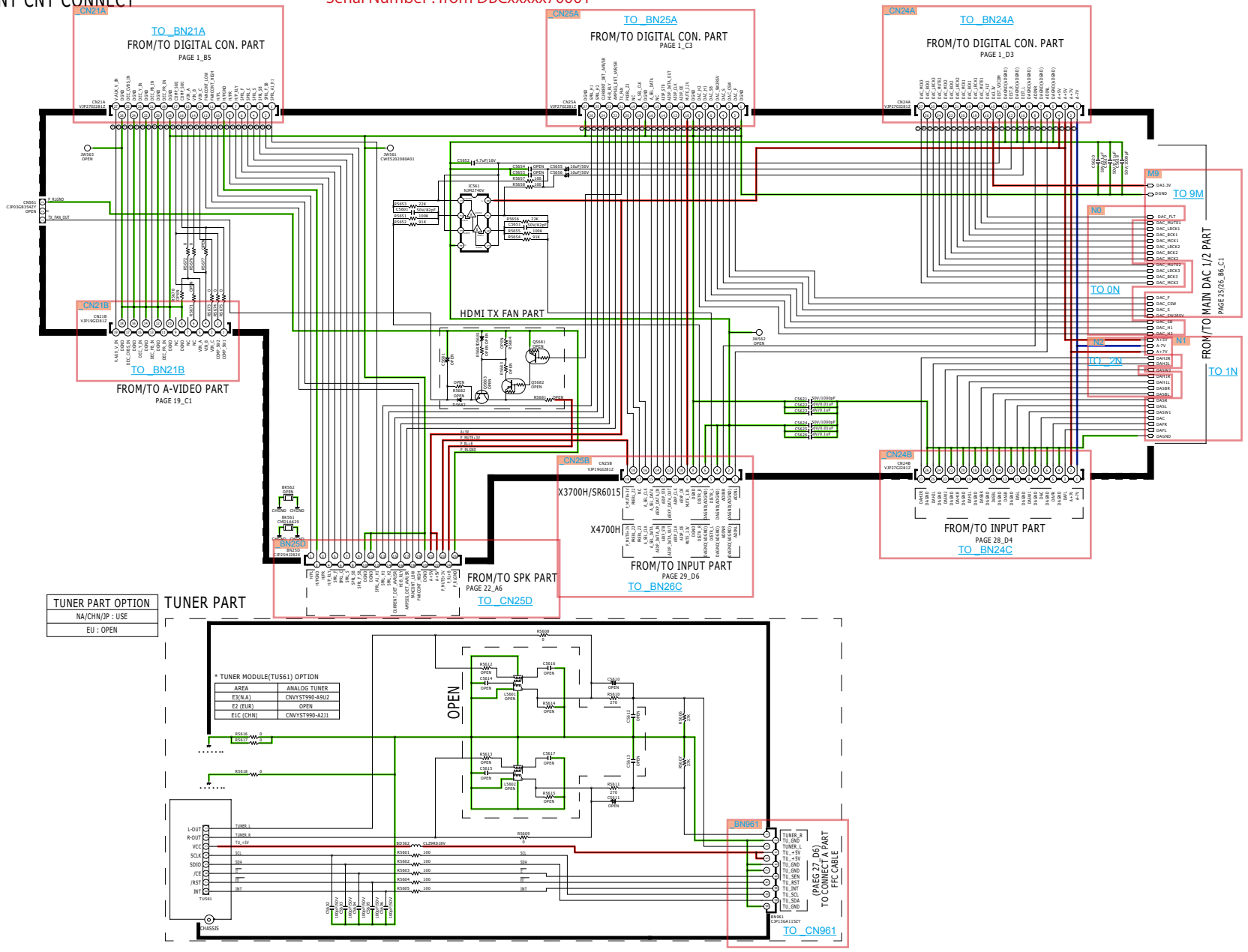
MODEL	R5671	R5672	R5673	R5674	R5675	R5676	R5677	R5678
X3700H	OPEN	0	0	0	0	0	OPEN	OPEN
X4700H	0	OPEN	OPEN	OPEN	OPEN	OPEN	0	0

GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH26-2 F.CNT FRONT CNT NEW

This SCHEMATIC DIAGRAMS describes the product with the following serial No.
Serial Number : from DBCxxxxx70001~

FRONT CNT CONNECT



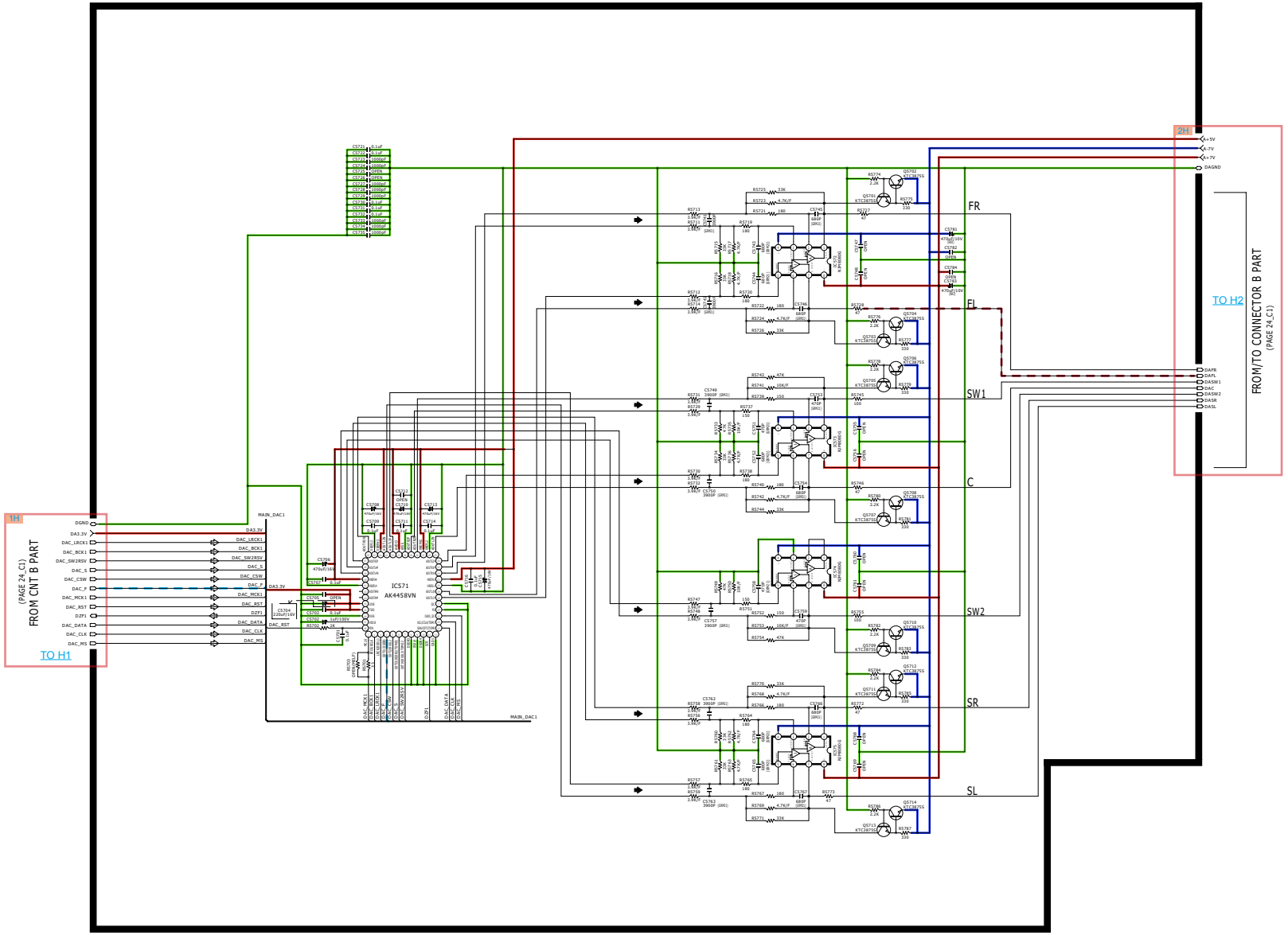
TUNER PART OPTION
NA/CHN/JP : USE
EU : OPEN

TUNER PART

GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH27-1 F.CNT MAIN DAC1 OLD

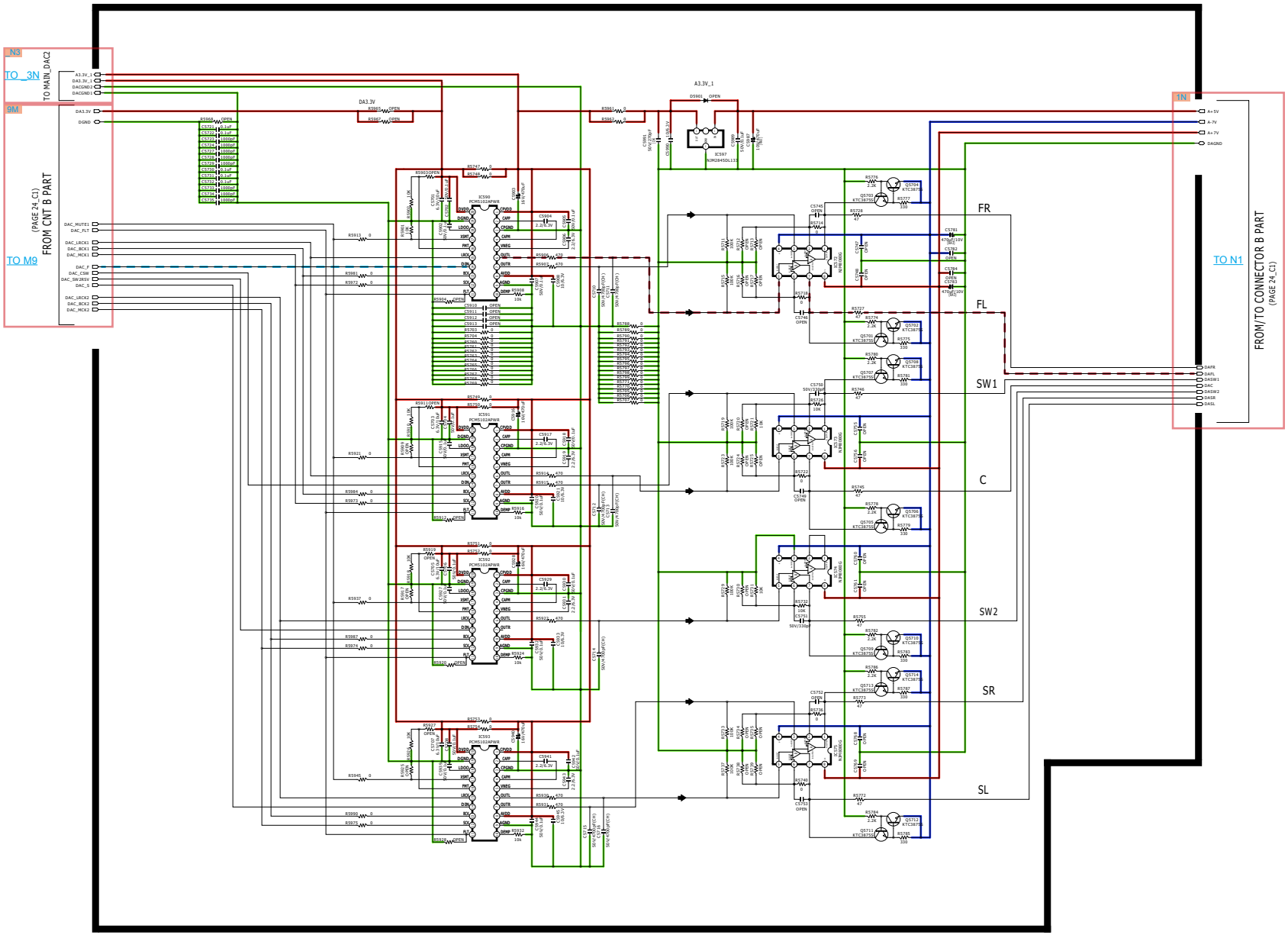
This SCHEMATIC DIAGRAMS describes the product with the following serial No.
Serial Number : until DBCxxxxx69999



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH27-2 F.CNT MAIN DAC1 NEW

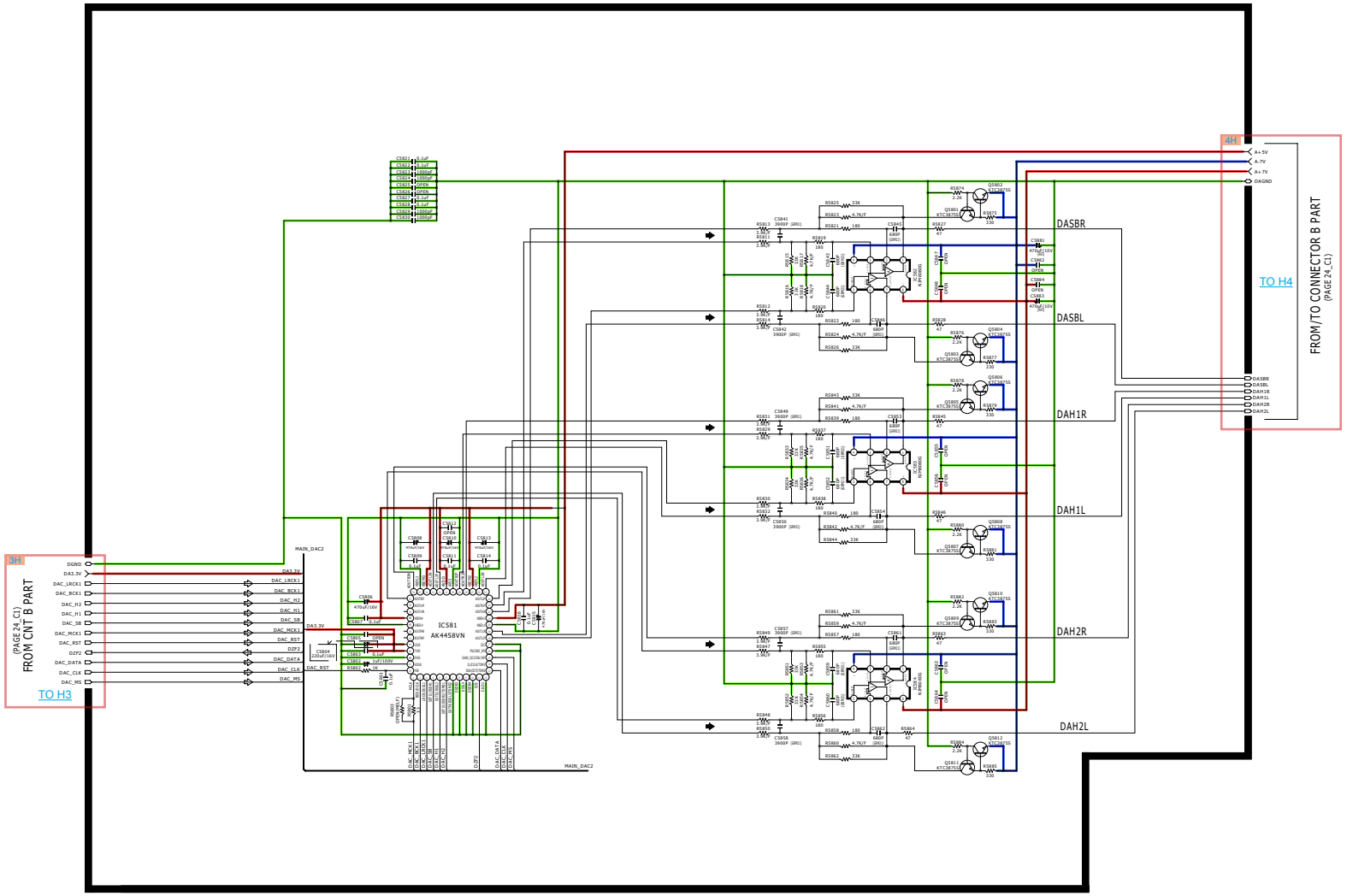
This SCHEMATIC DIAGRAMS describes the product with the following serial No.
Serial Number : from DBCxxxxx70001~



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH28-1 F.CNT MAIN DAC2 OLD

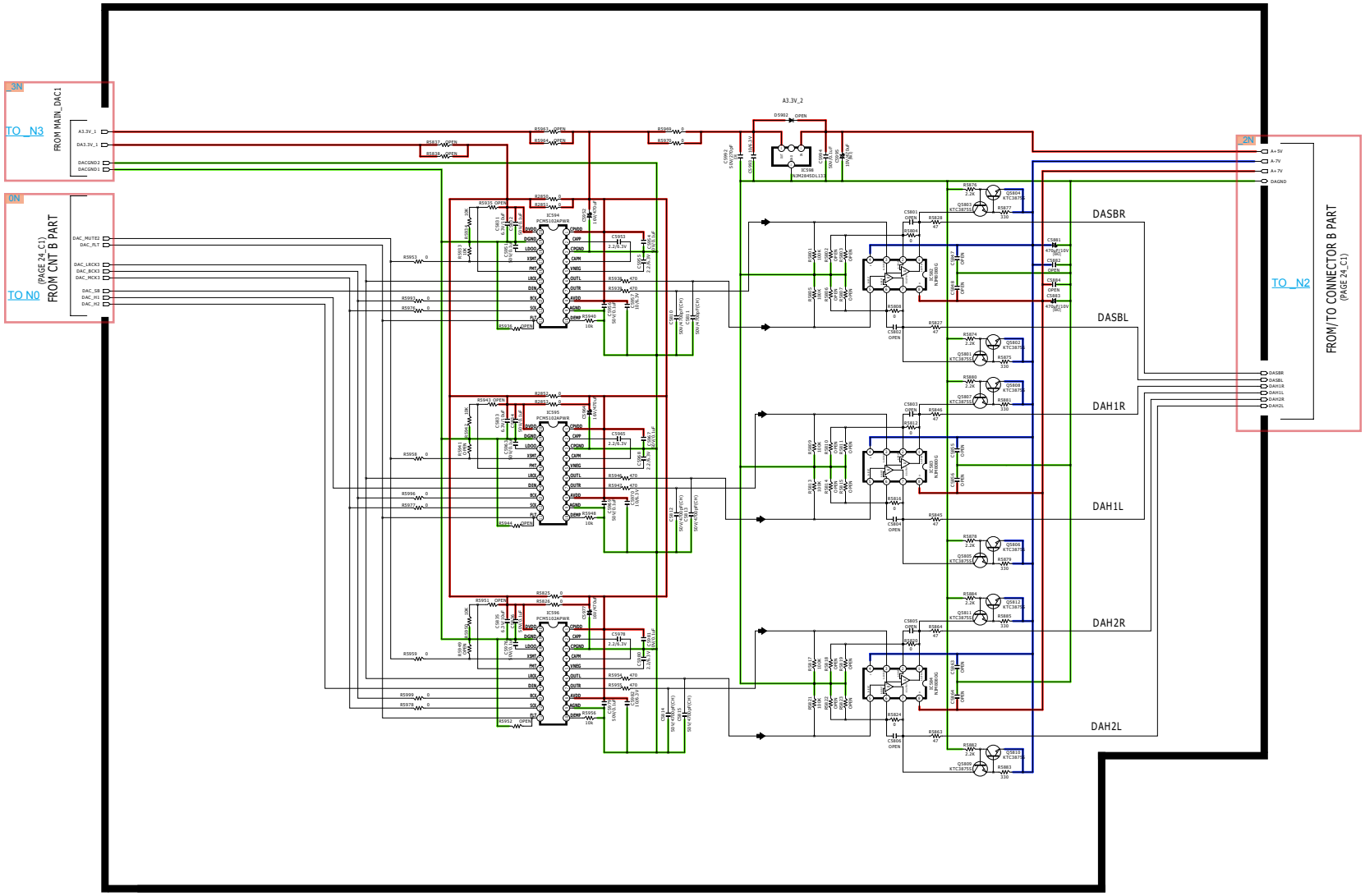
This SCHEMATIC DIAGRAMS describes the product with the following serial No.
Serial Number : until DBCxxxxx69999



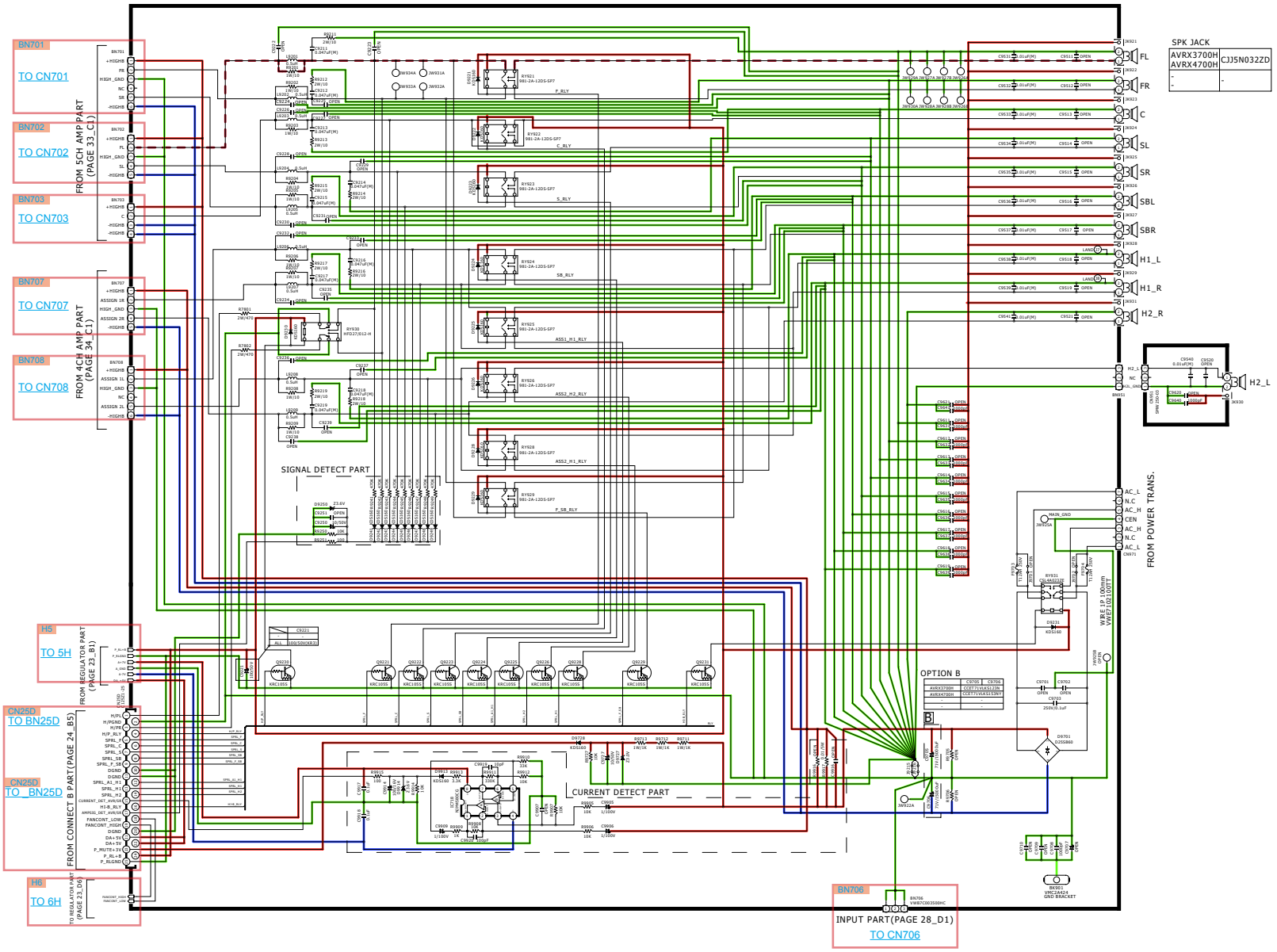
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

⚠2 SCH28-2 F.CNT MAIN DAC2 NEW

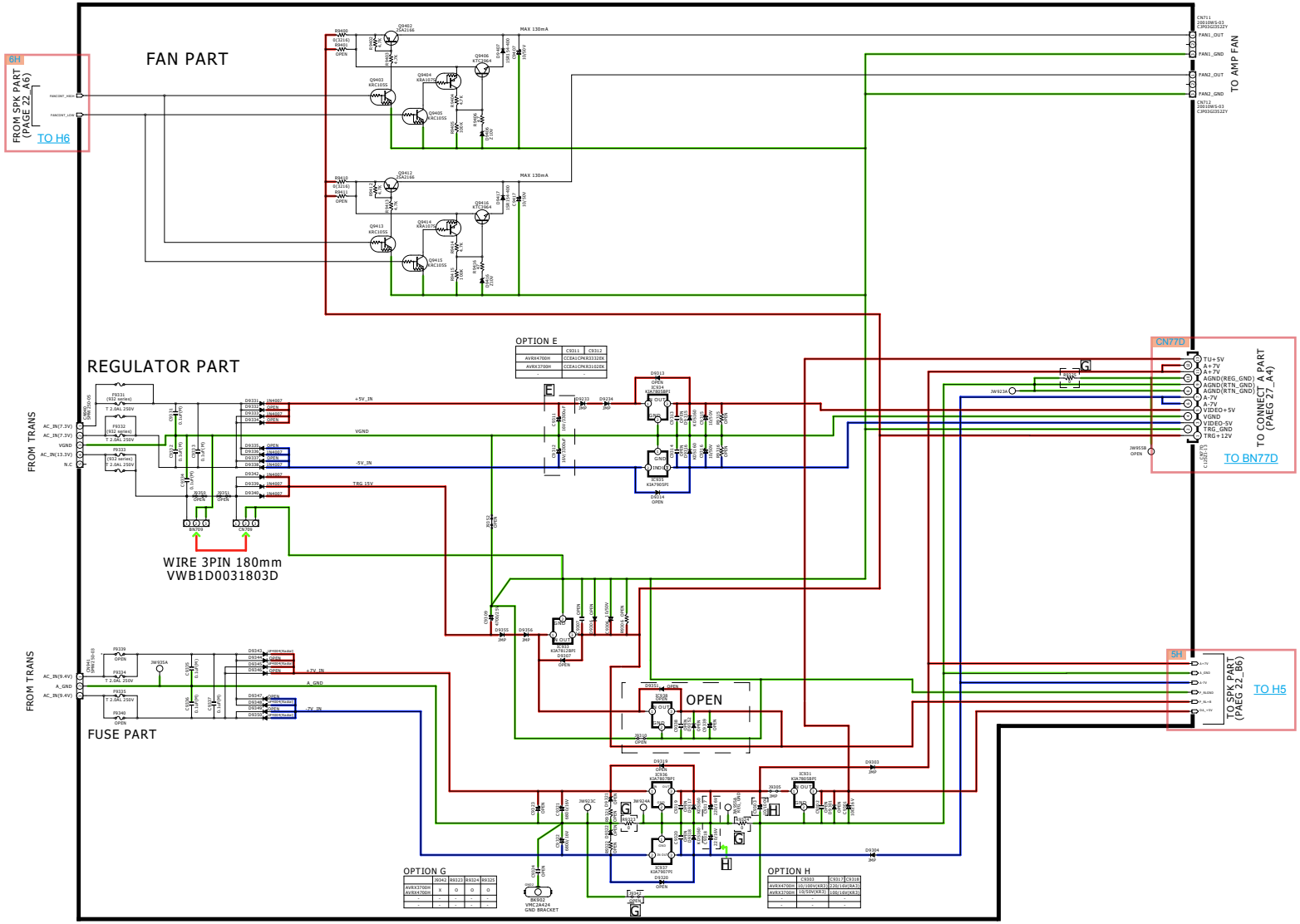
This SCHEMATIC DIAGRAMS describes the product with the following serial No.
Serial Number : from DBCxxxxx70001~



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER

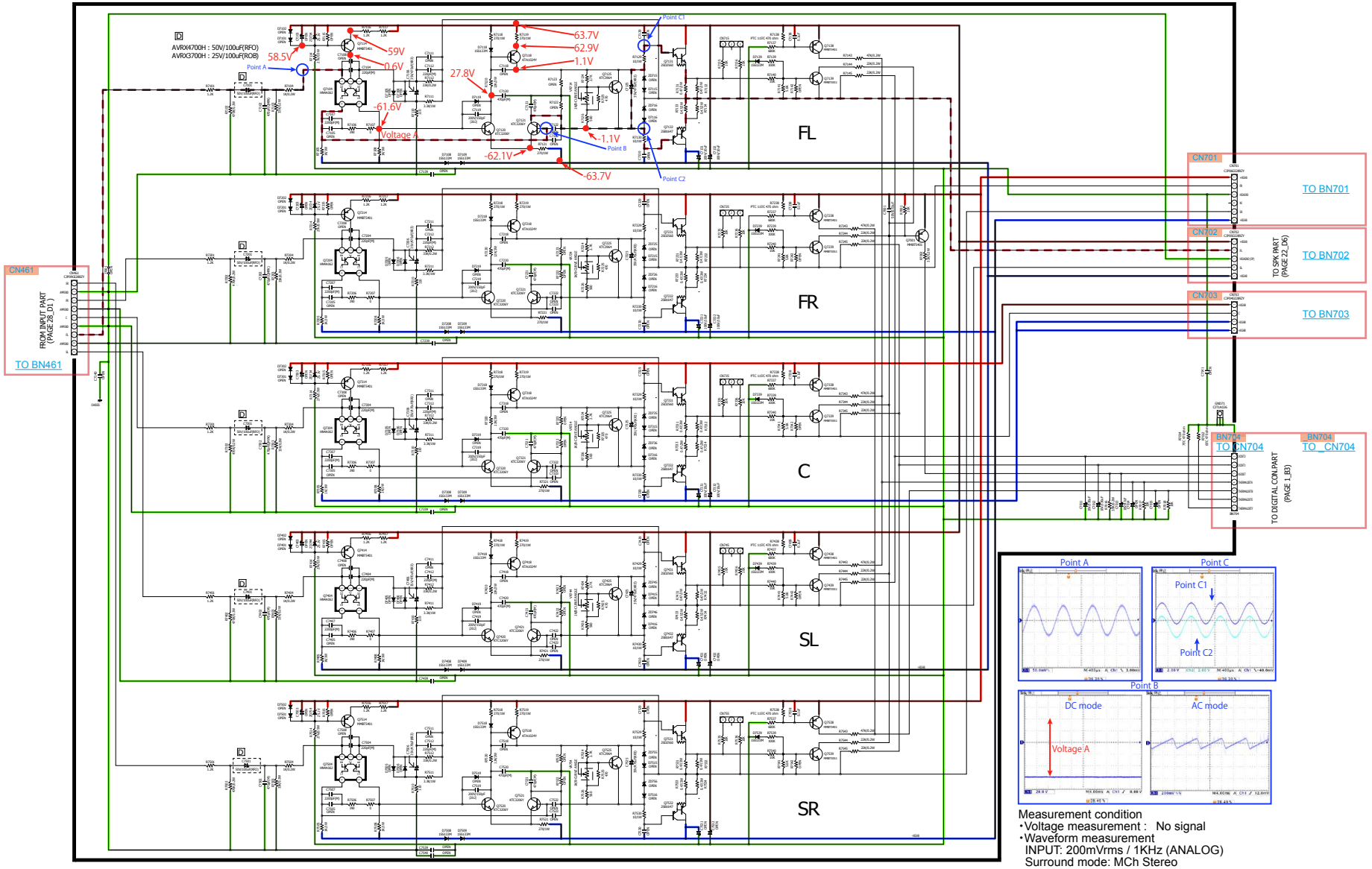


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

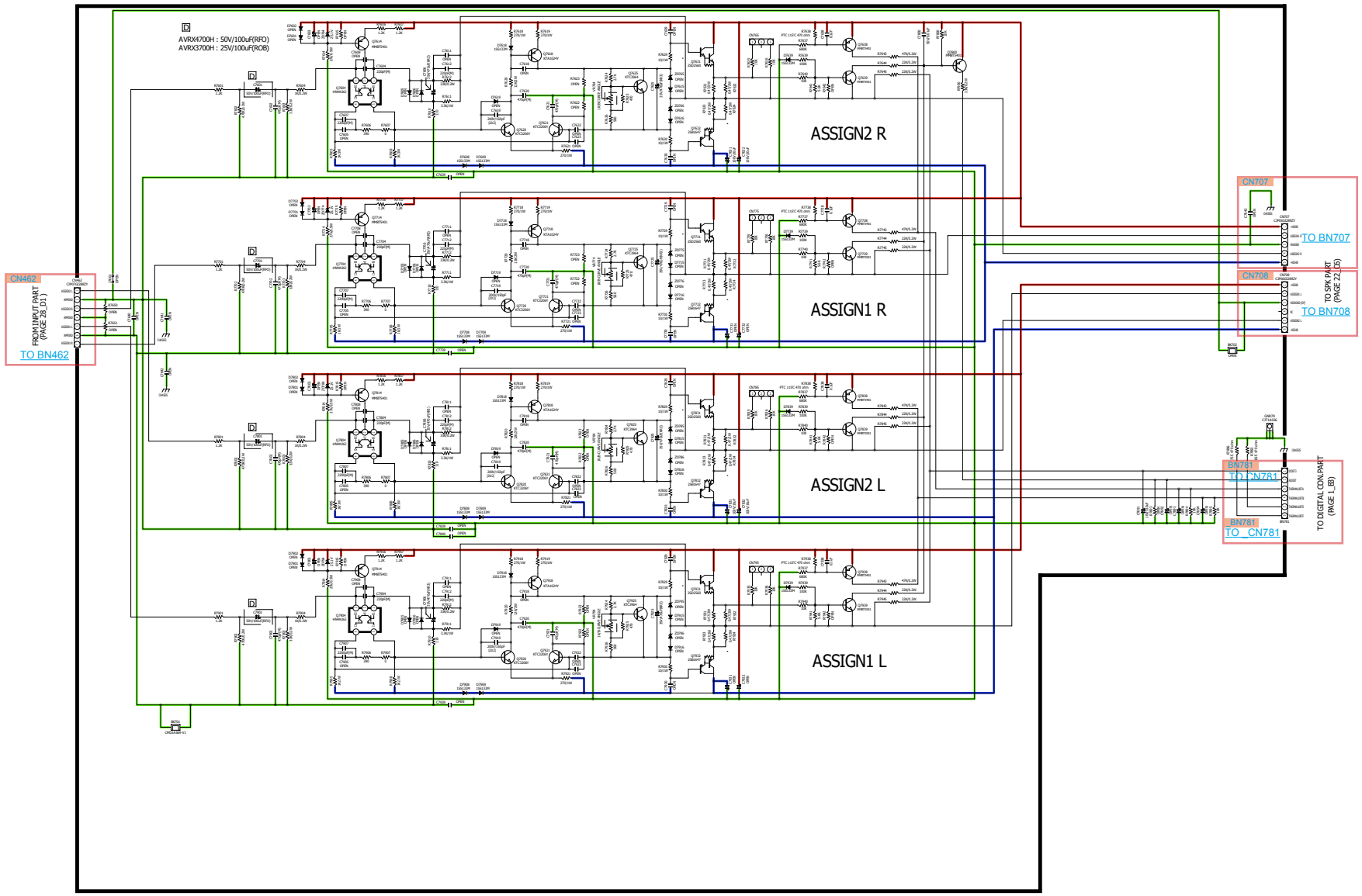
SCH31 AMP 5CH AMP



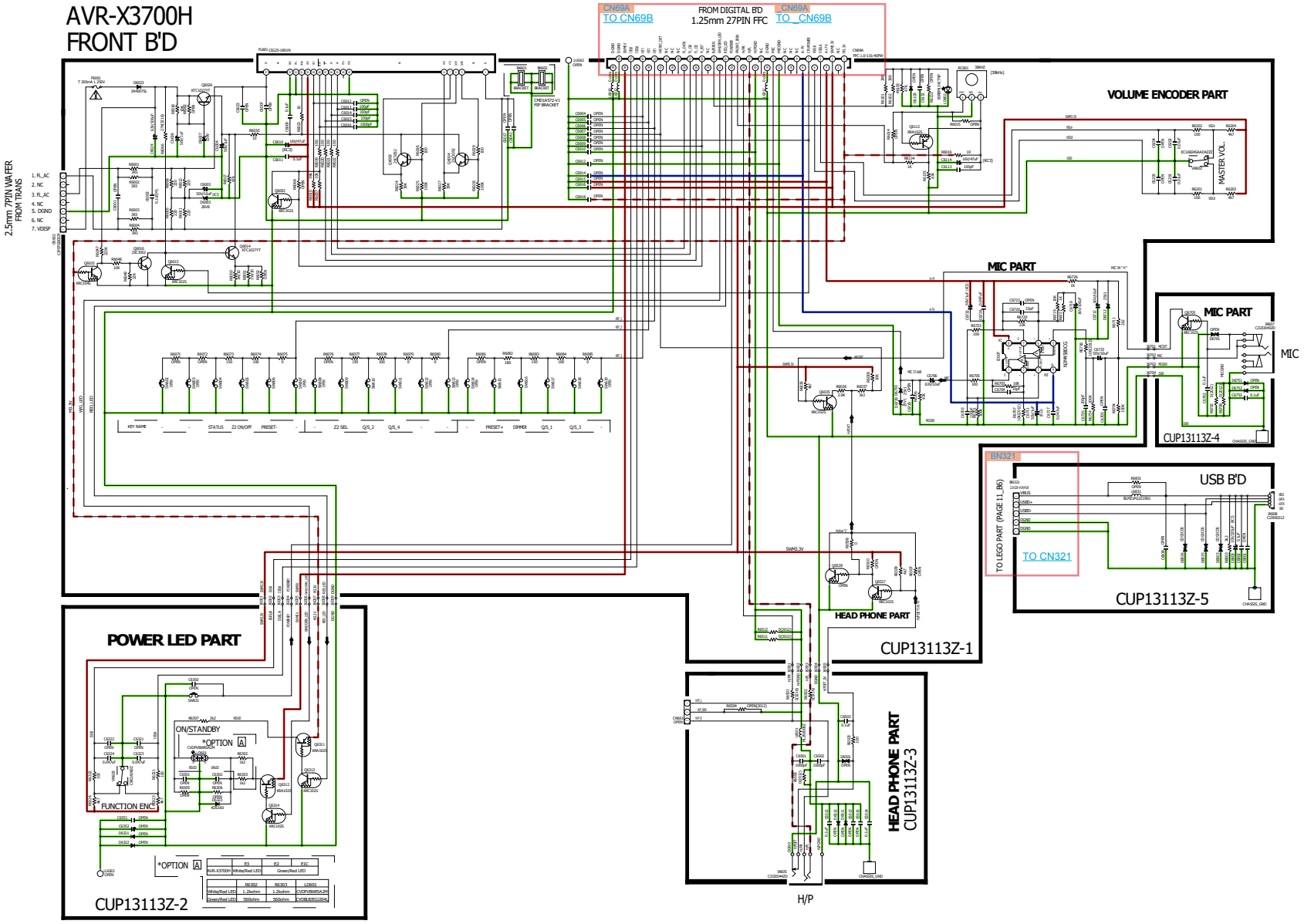
Measurement condition
・Voltage measurement : No signal
・Waveform measurement
INPUT: 200mVrms / 1KHz (ANALOG)
Surround mode: MCh Stereo
VOL: 70
Speaker load: 8ohms

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

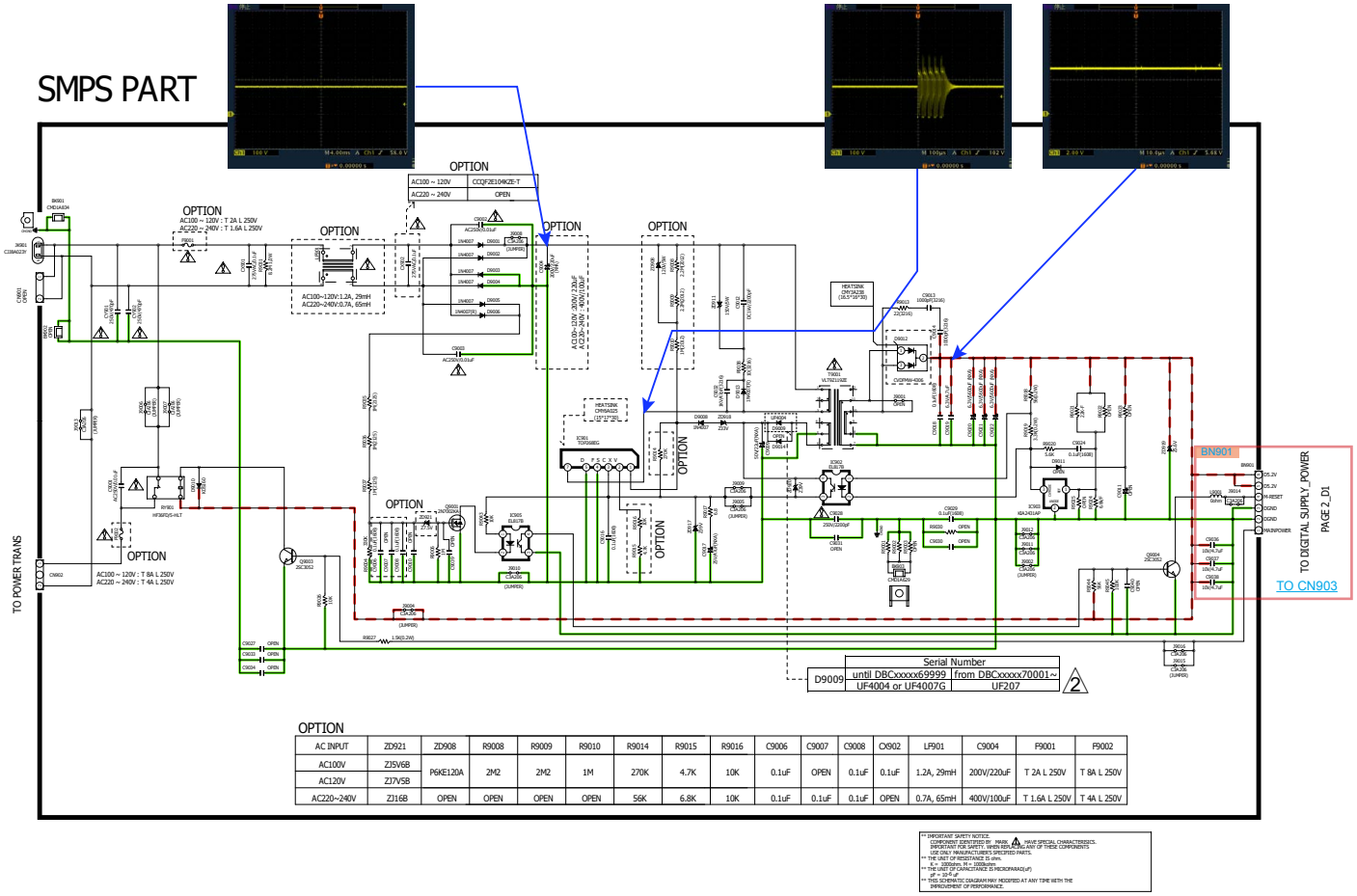
SCH32 AMP 4CH AMP



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | DIGITAL VIDEO | STBY POWER



OPTION

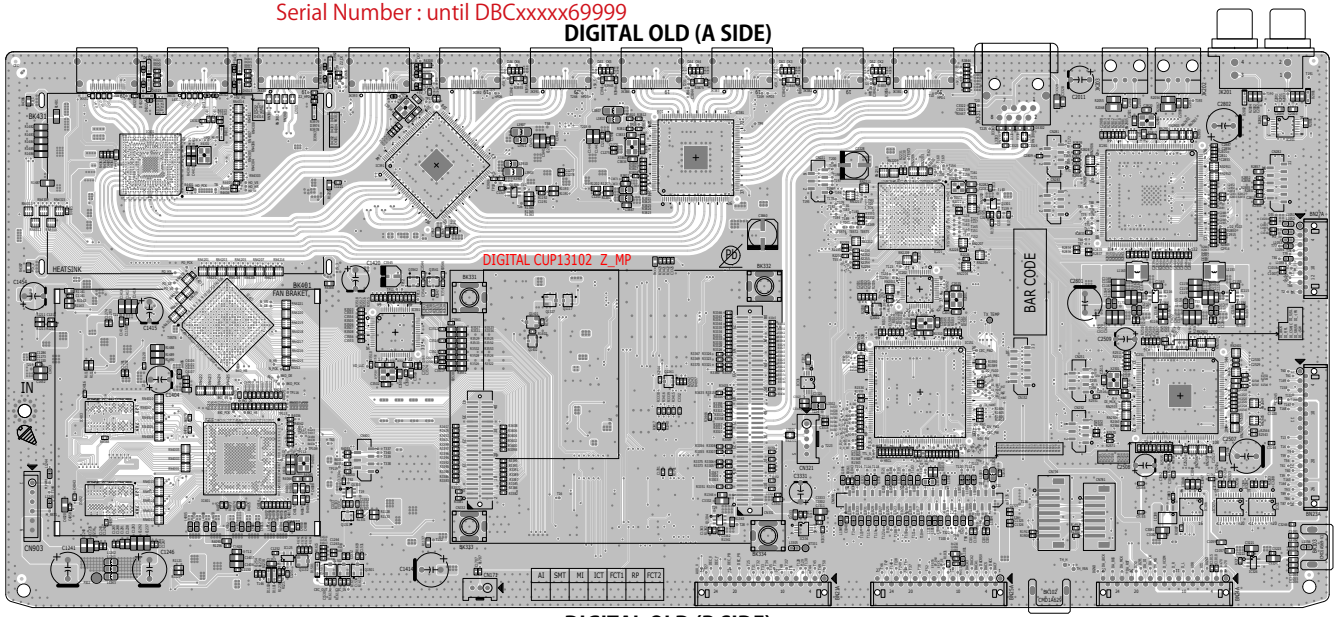
AC INPUT	ZD921	ZD908	R9008	R9009	R9010	R9014	R9015	R9016	C9006	C9007	C9008	C902	LF901	C9004	F9001	F9002
AC100V	ZJ5V6B	P6KE120A	2M2	2M2	1M	270K	4.7K	10K	0.1uF	OPEN	0.1uF	0.1uF	1.2A, 29mH	200V/220uF	T 2A L 250V	T 8A L 250V
AC120V	ZJ7V5B															
AC220~240V	ZJ16B	OPEN	OPEN	OPEN	OPEN	56K	6.8K	10K	0.1uF	0.1uF	0.1uF	OPEN	0.7A, 65mH	400V/100uF	T 1.6A L 250V	T 4A L 250V

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

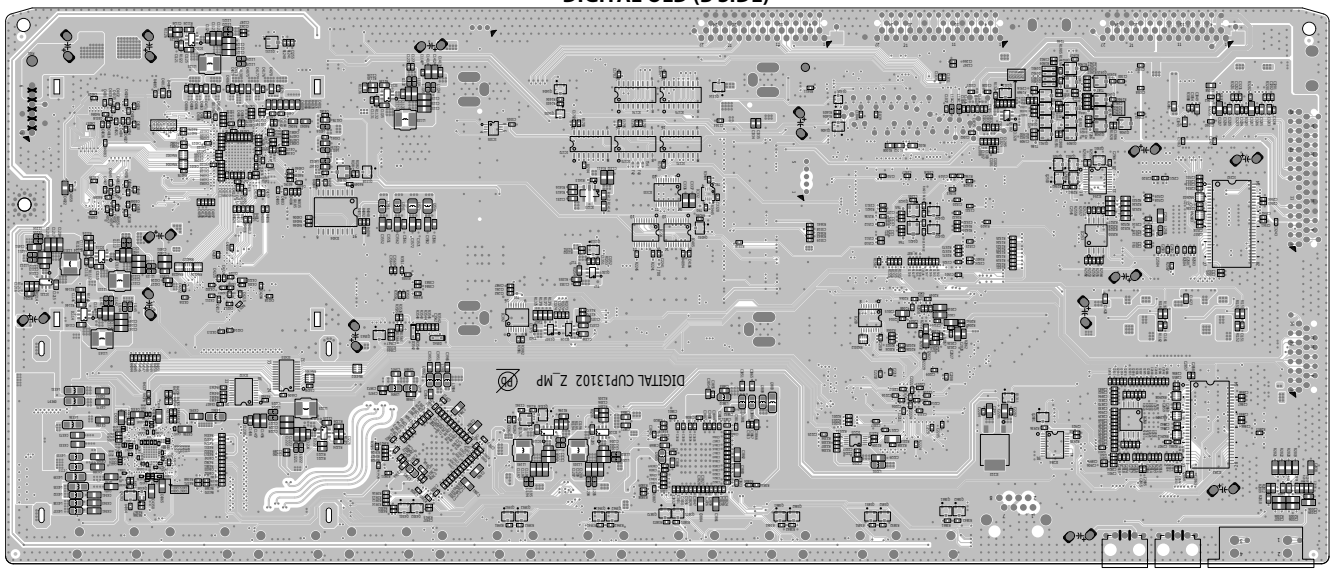
⚠2 DIGITAL OLD

This DIGITAL OLD PCB describes the product with the following serial No.
Serial Number : until DBCxxxxx69999

DIGITAL OLD (A SIDE)



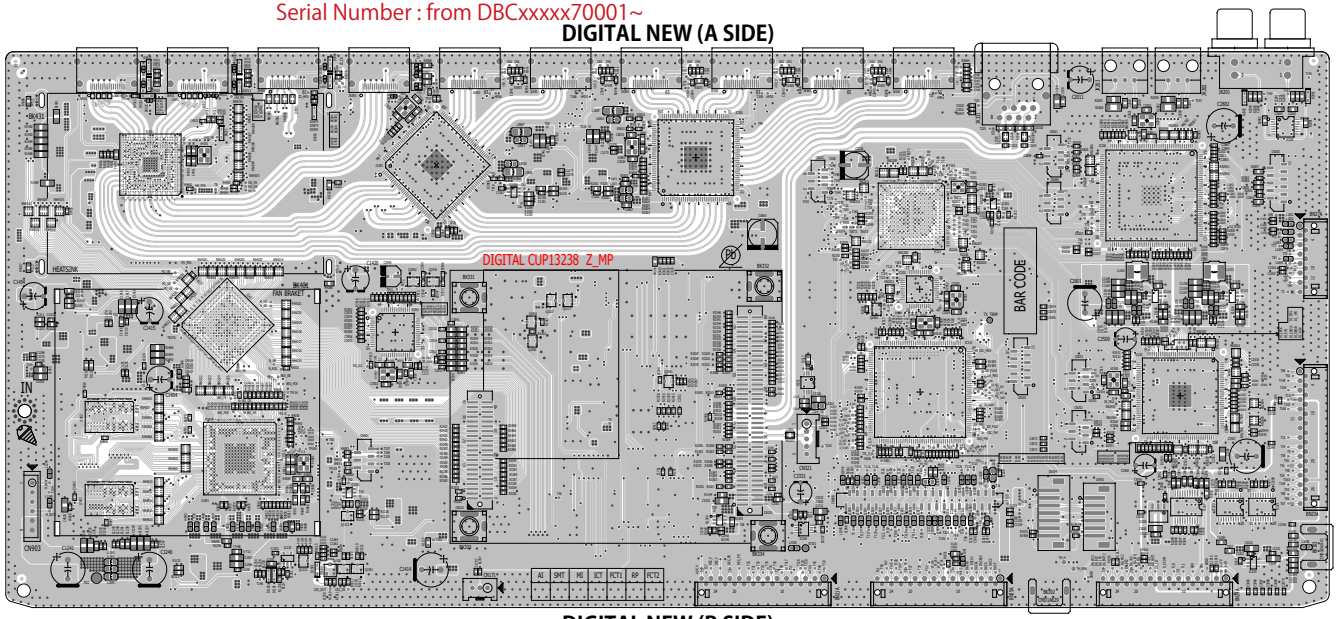
DIGITAL OLD (B SIDE)



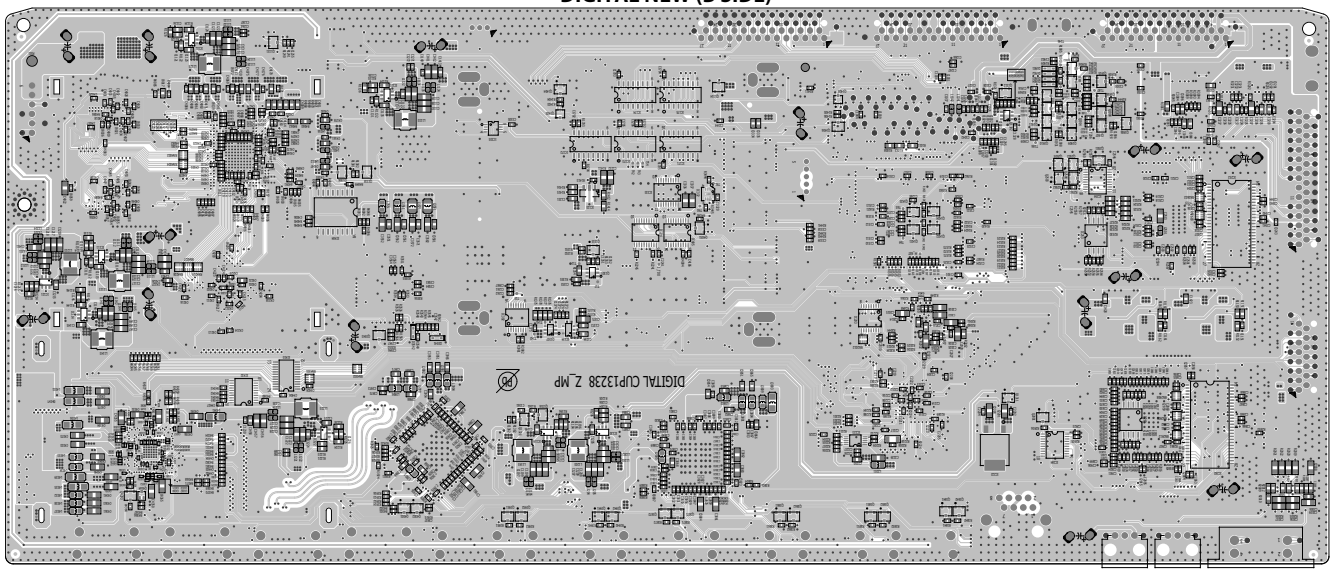
⚠2 DIGITAL NEW

This DIGITAL NEW PCB describes the product with the following serial No.
Serial Number : from DBCxxxxx70001~

DIGITAL NEW (A SIDE)

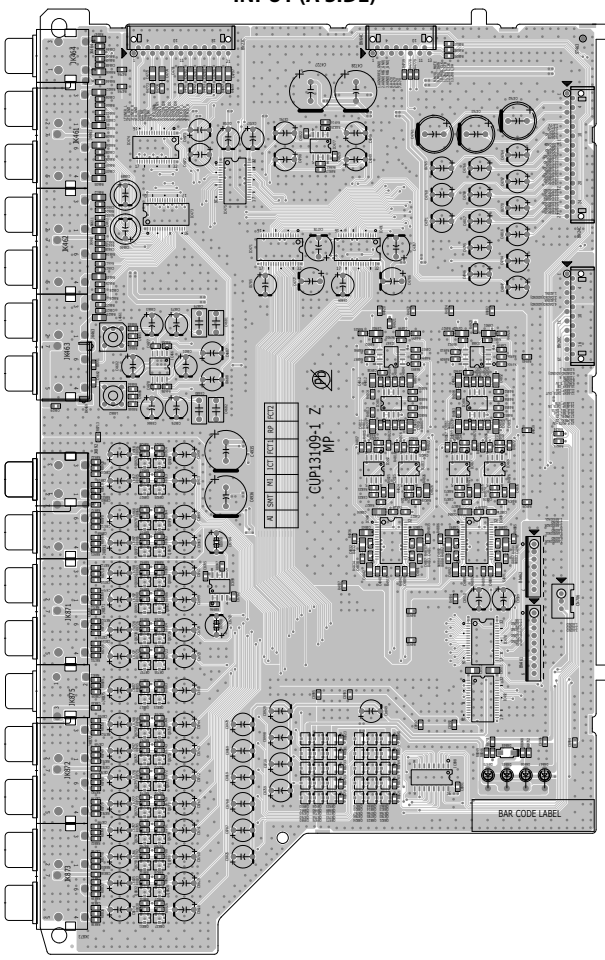


DIGITAL NEW (B SIDE)

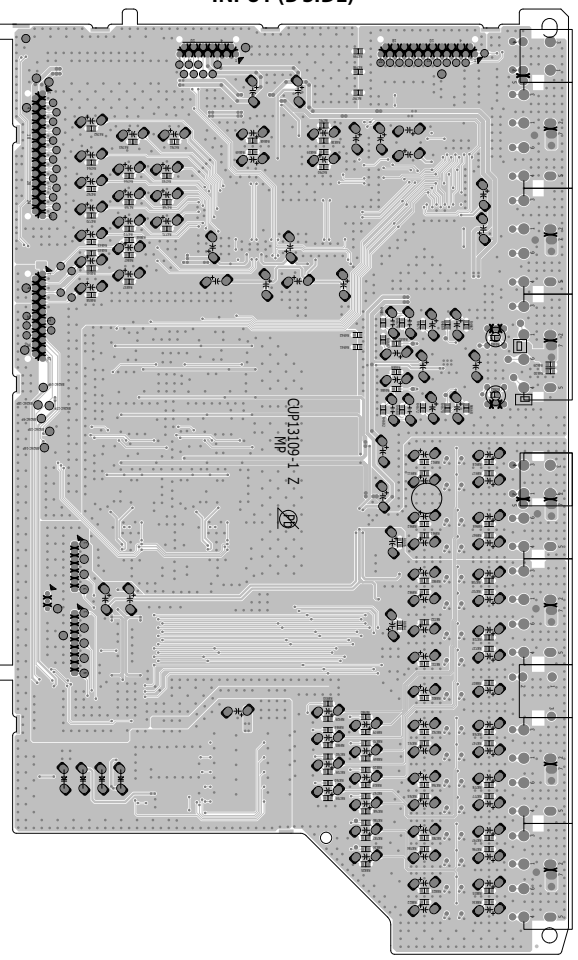


INPUT

INPUT (A SIDE)

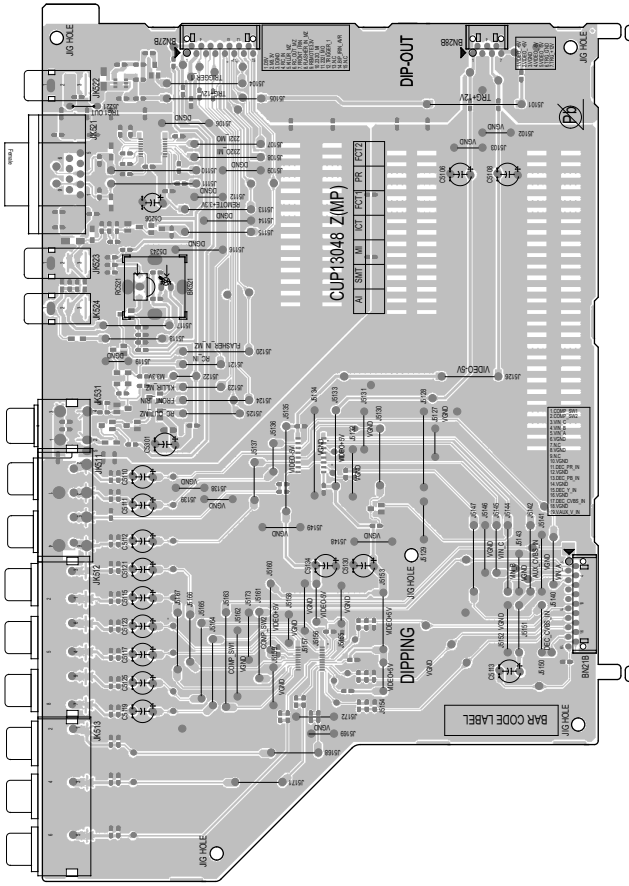


INPUT (B SIDE)

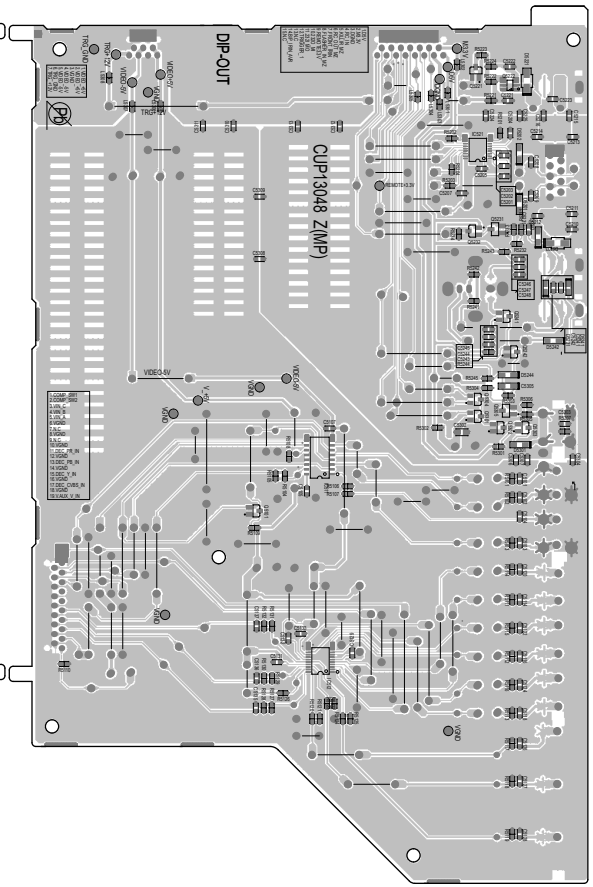


VIDEO, SIDE CNT, FRONT CONT FFC

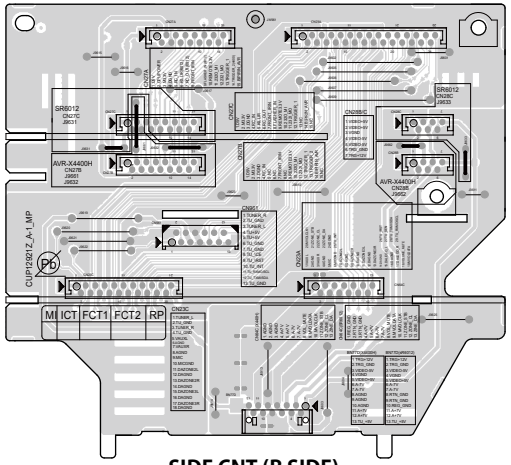
VIDEO (A SIDE)



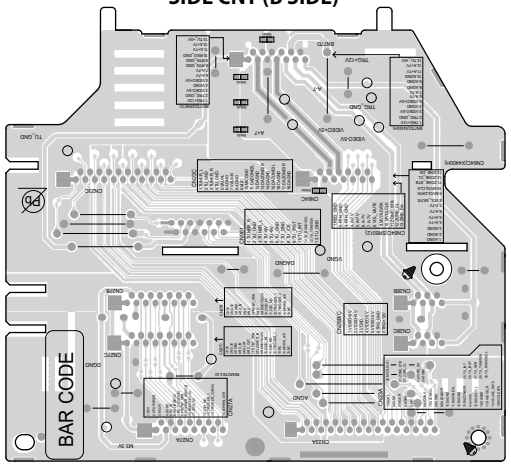
VIDEO (B SIDE)



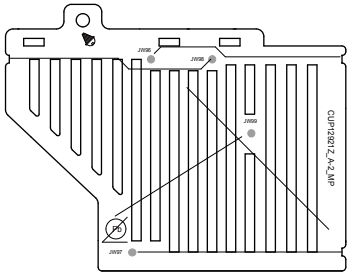
SIDE CNT (A SIDE)



SIDE CNT (B SIDE)

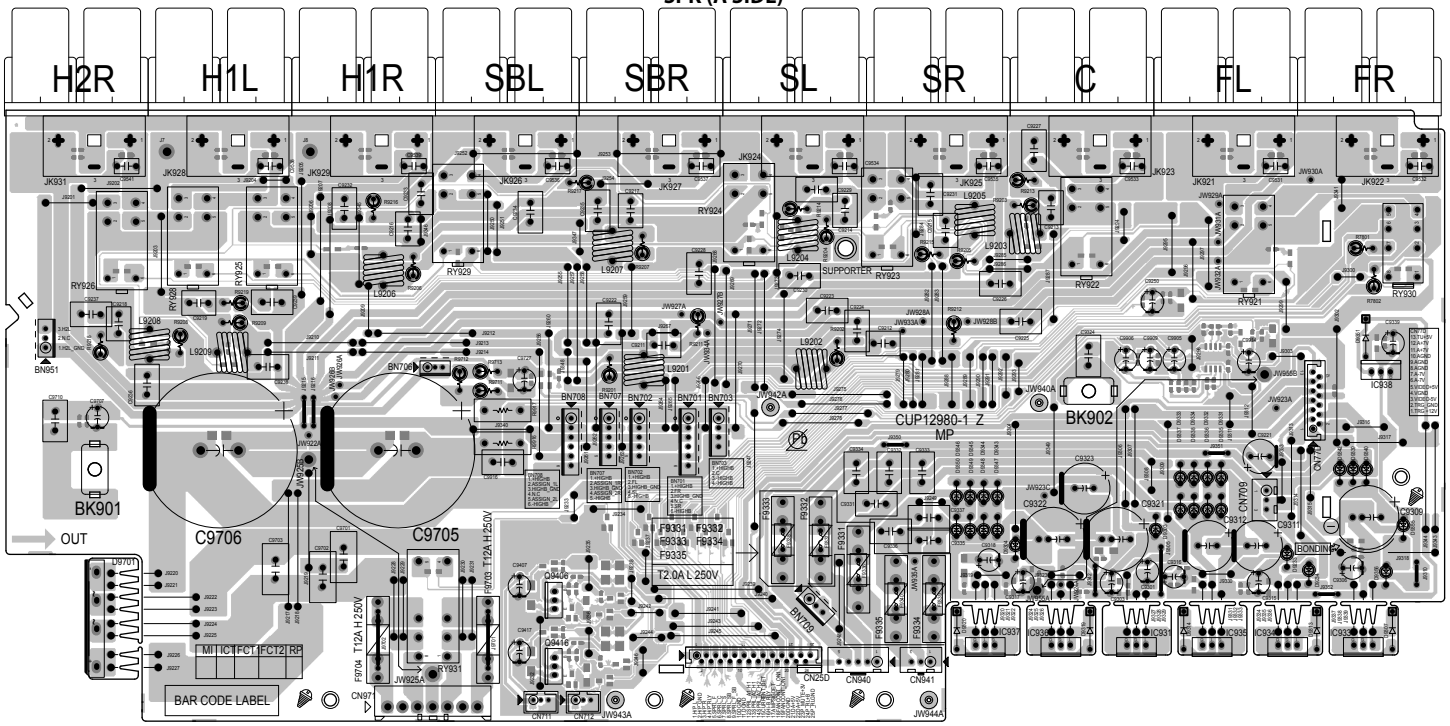


FRONT CONT FFC (A SIDE)

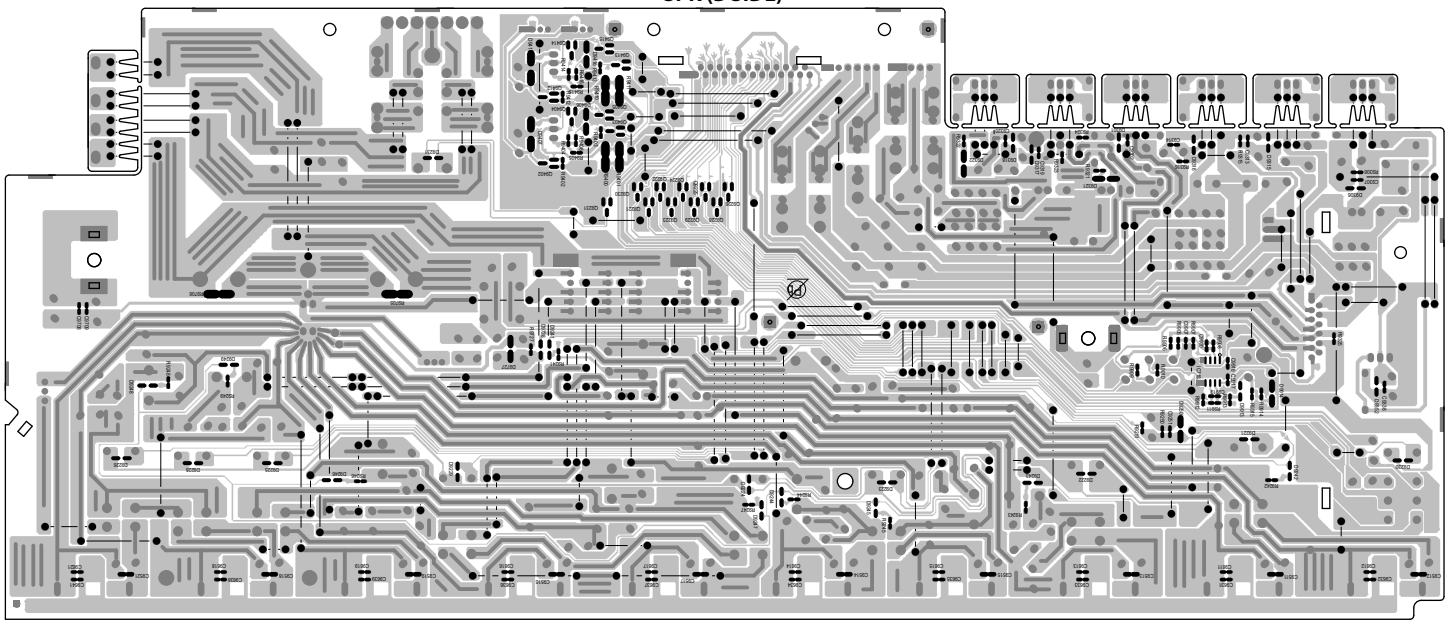


SPK, SPK H2L, GUIDE TRANS, GUIDE SIDE

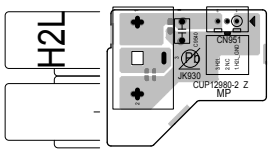
SPK (A SIDE)



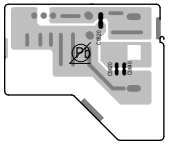
SPK (B SIDE)



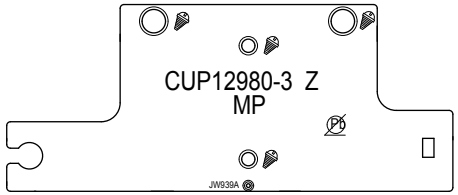
SPK H2L (A SIDE)



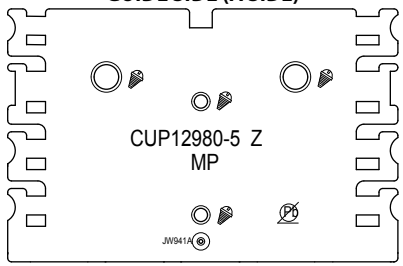
SPK H2L (A SIDE)



GUIDE TRANS (A SIDE)

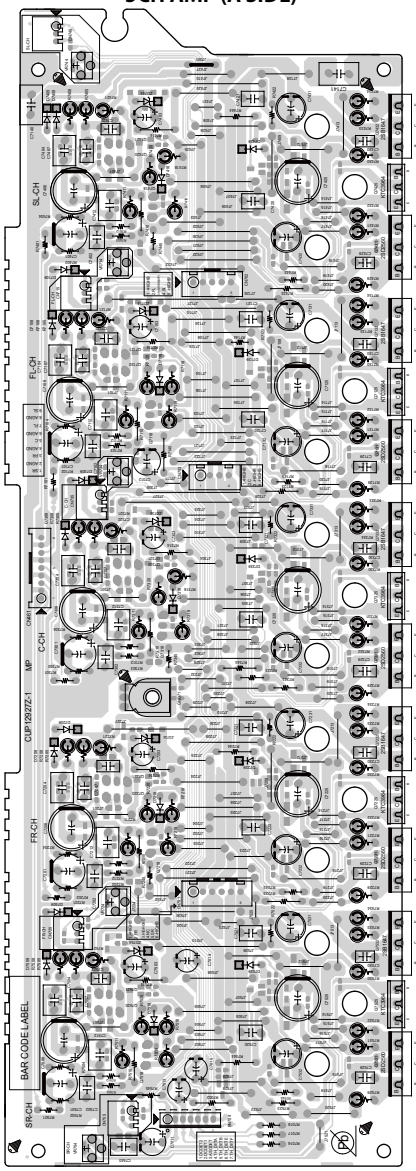


GUIDE SIDE (A SIDE)

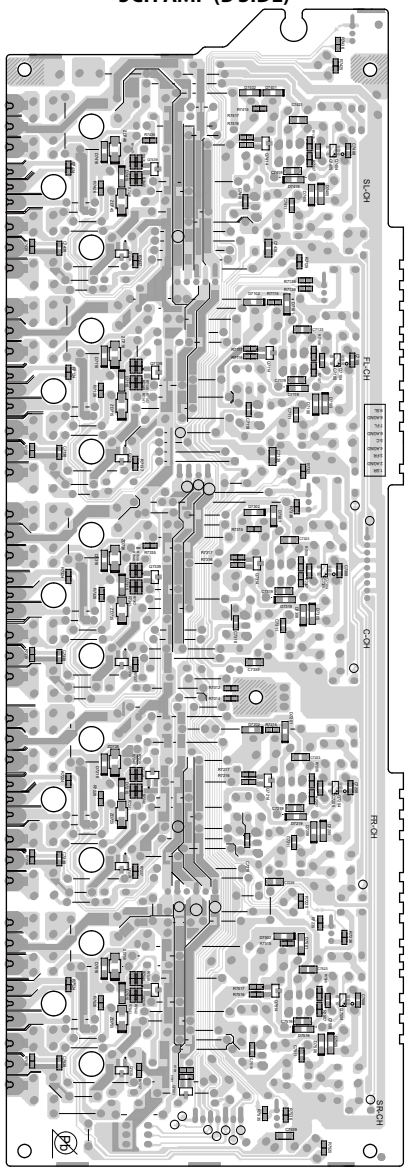


5CH AMP, 4CH AMP

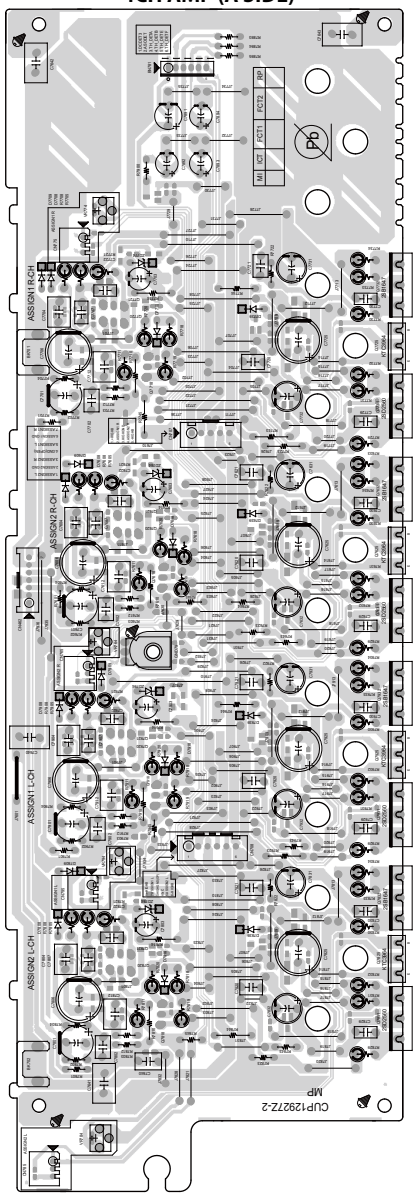
5CH AMP (A SIDE)



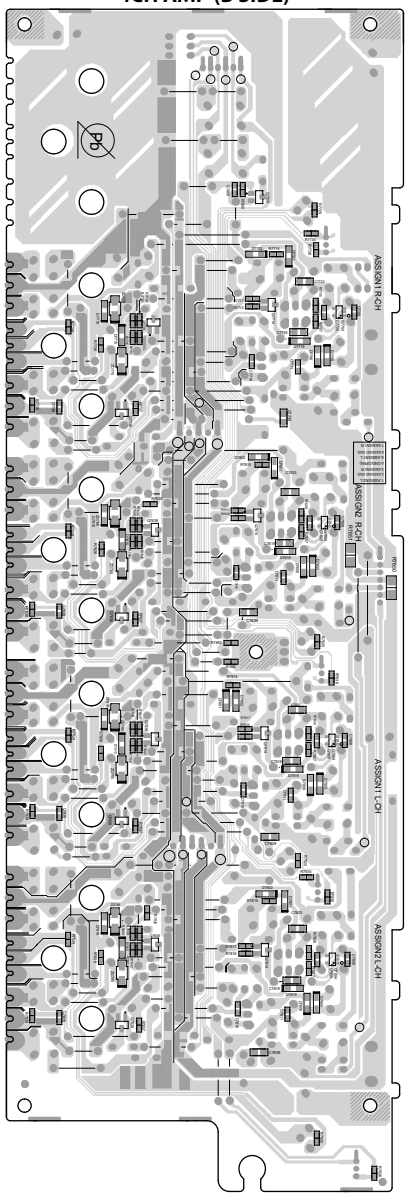
5CH AMP (B SIDE)



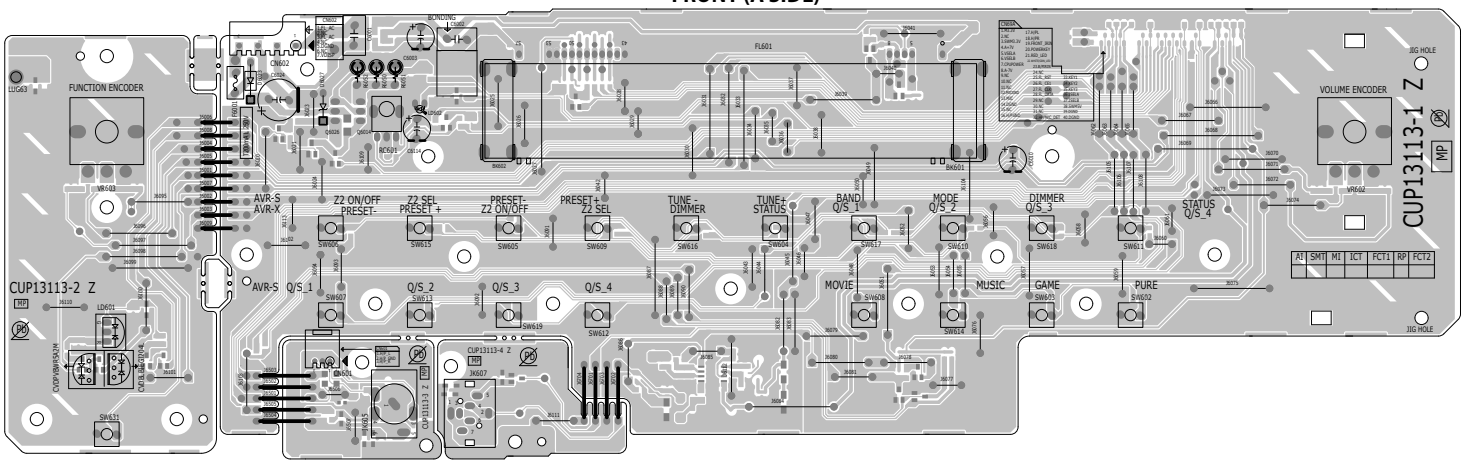
4CH AMP (A SIDE)



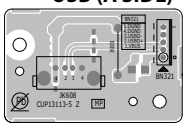
4CH AMP (B SIDE)



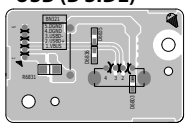
FRONT (A SIDE)



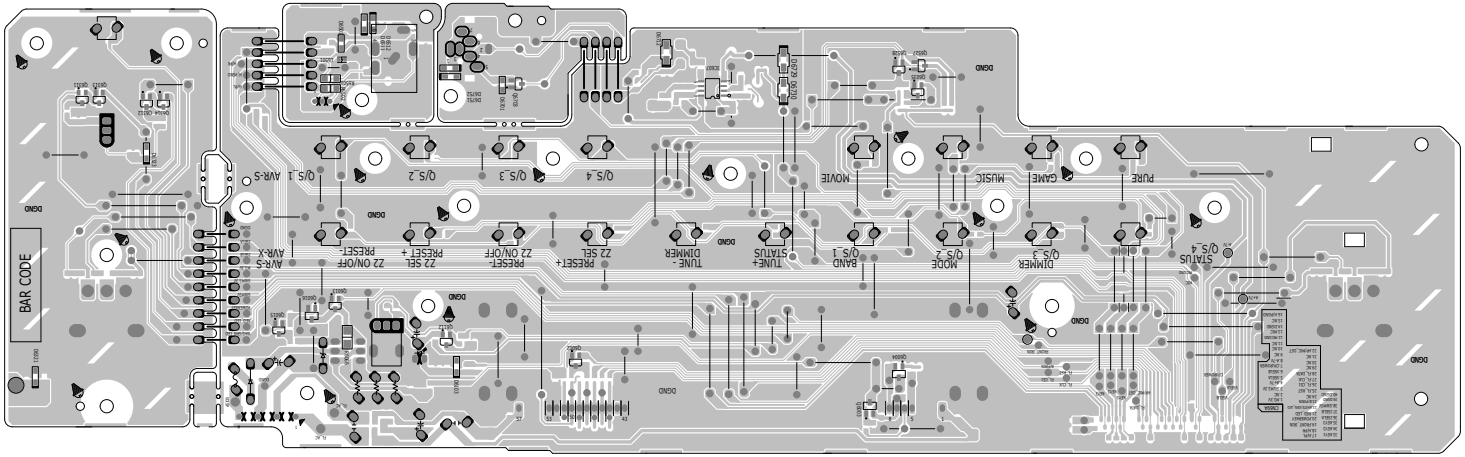
USB (A SIDE)



USB (B SIDE)



FRONT (B SIDE)

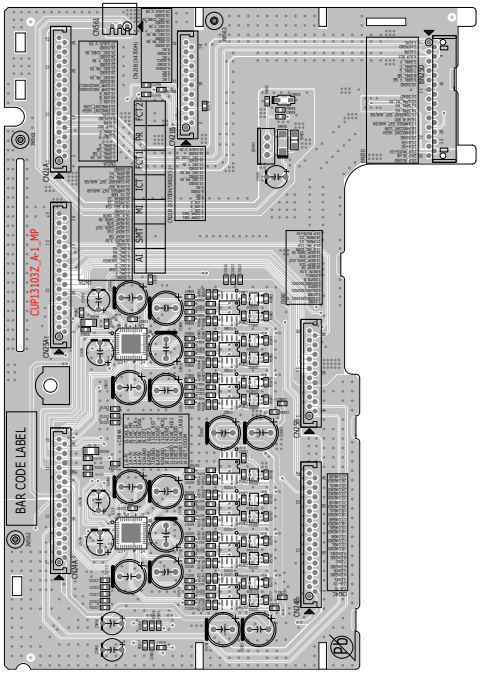


⚠2 FRONT CNT OLD, FRONT CNT NEW, TUNER, BKT, SMPS

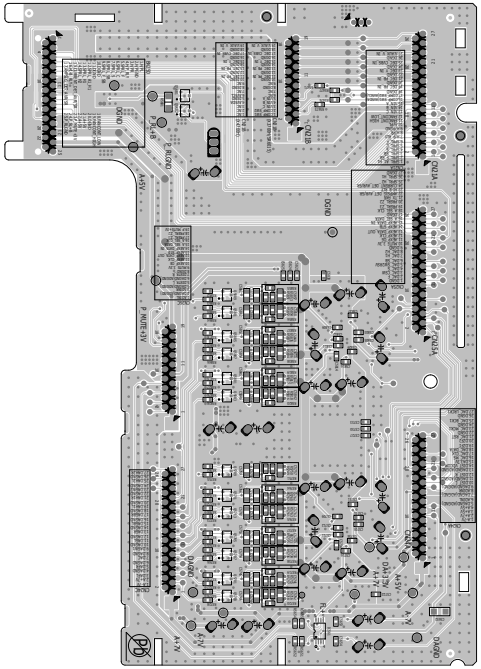
This FRONT CNT OLD PCB describes the product with the following serial No.
Serial Number : until DBCxxxxx69999

This FRONT CNT NEW PCB describes the product with the following serial No.
Serial Number : from DBCxxxxx70001~

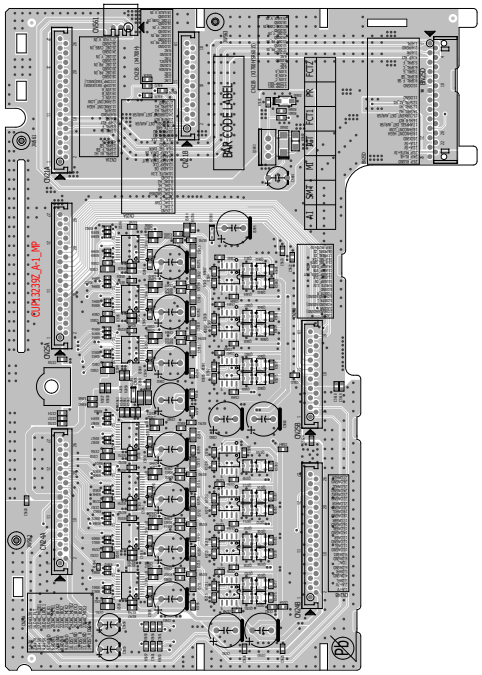
FRONT CNT OLD (A SIDE)



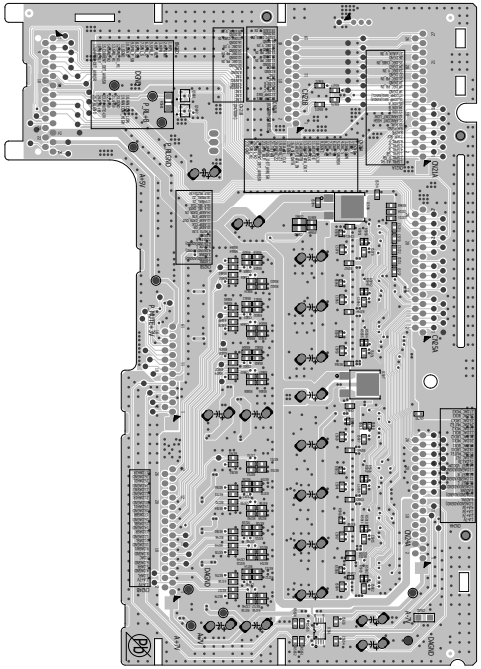
FRONT CNT OLD (B SIDE)



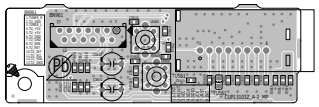
FRONT CNT NEW (A SIDE)



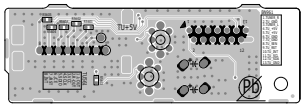
FRONT CNT NEW (B SIDE)



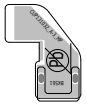
TUNER (A SIDE)



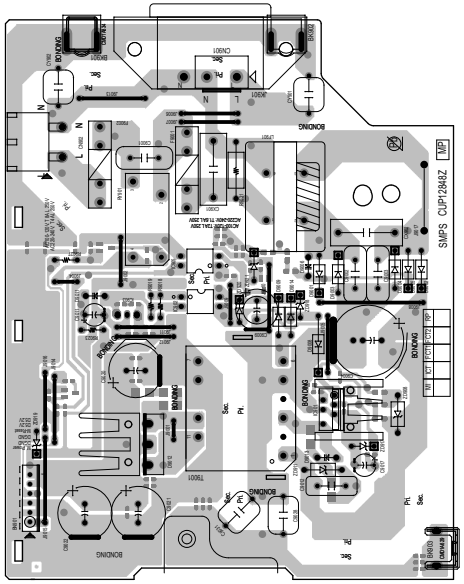
TUNER (B SIDE)



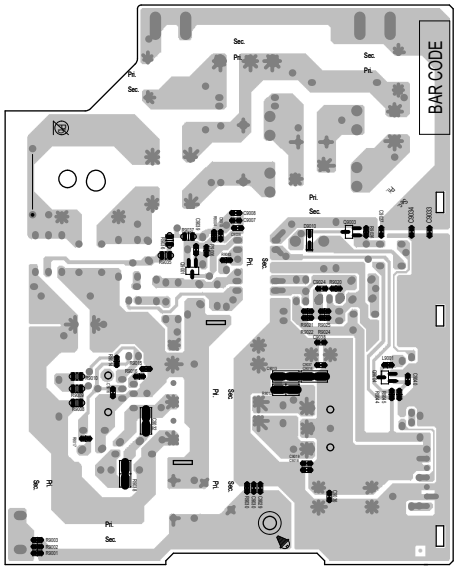
BKT (A SIDE)



SMPS (A SIDE)

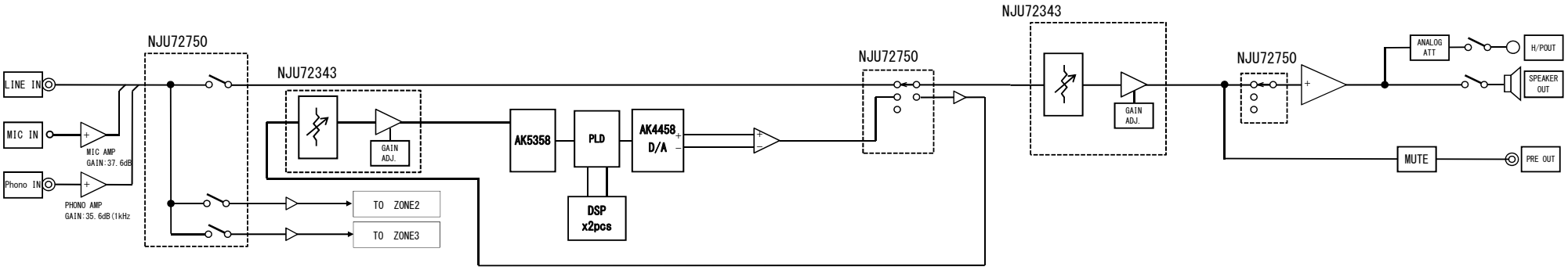


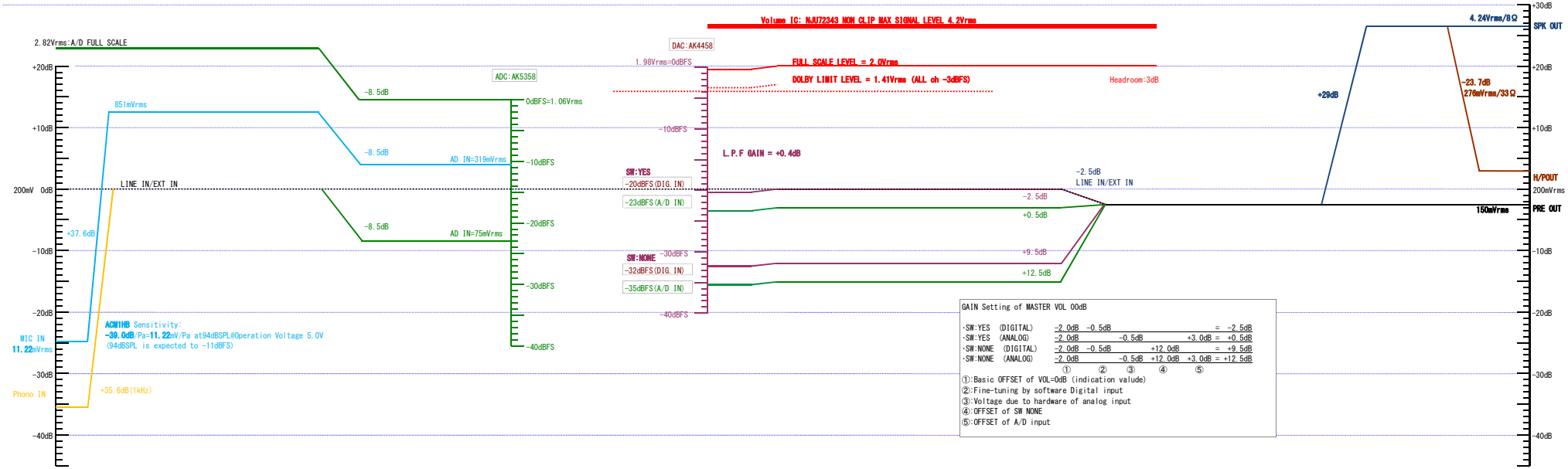
SMPS (B SIDE)



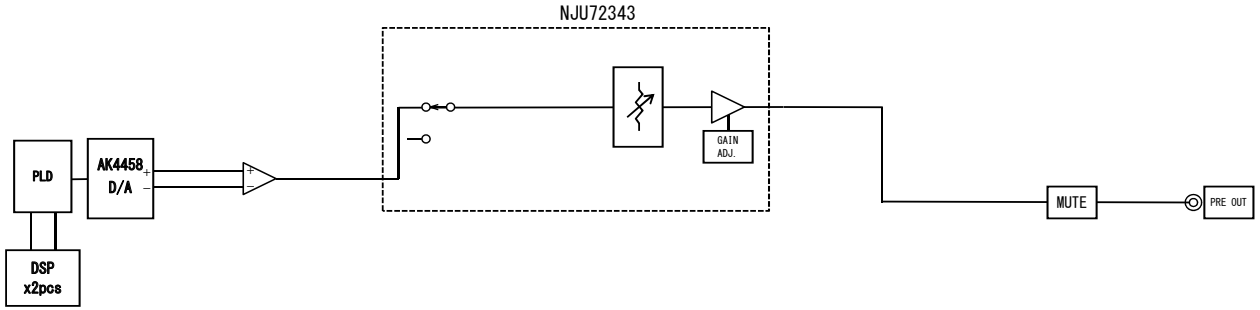
FRONT ch

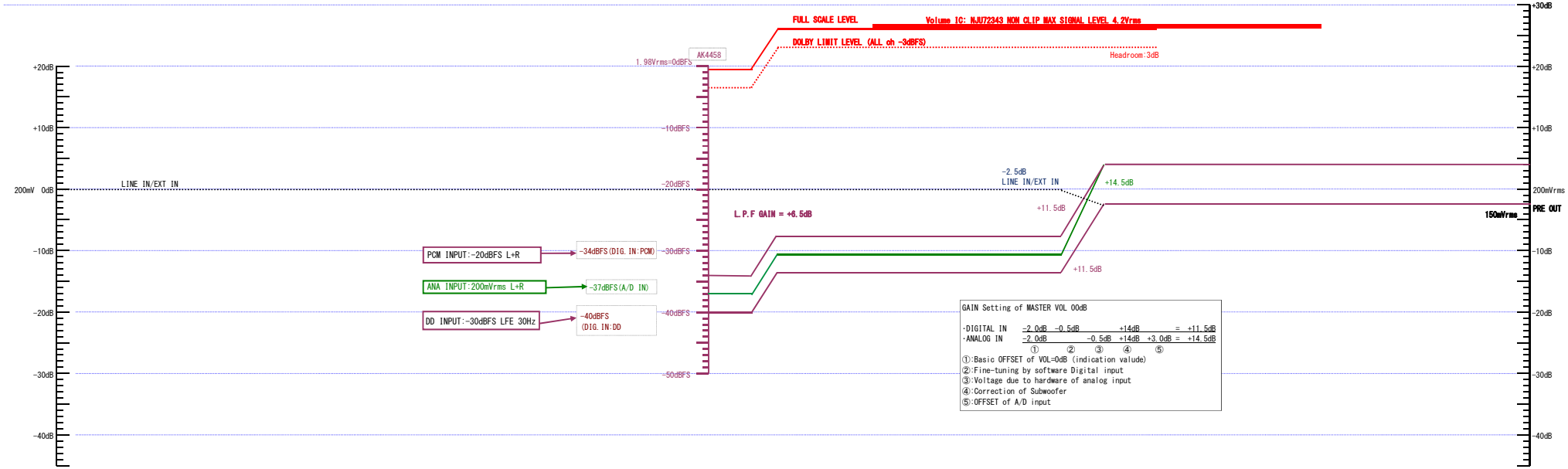
AVR-X3700H
LEVEL DIAGRAM
FRONT ch



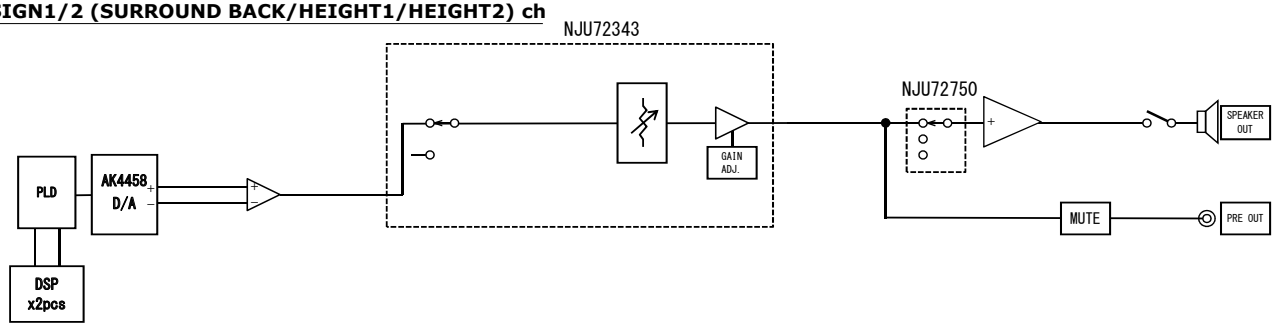


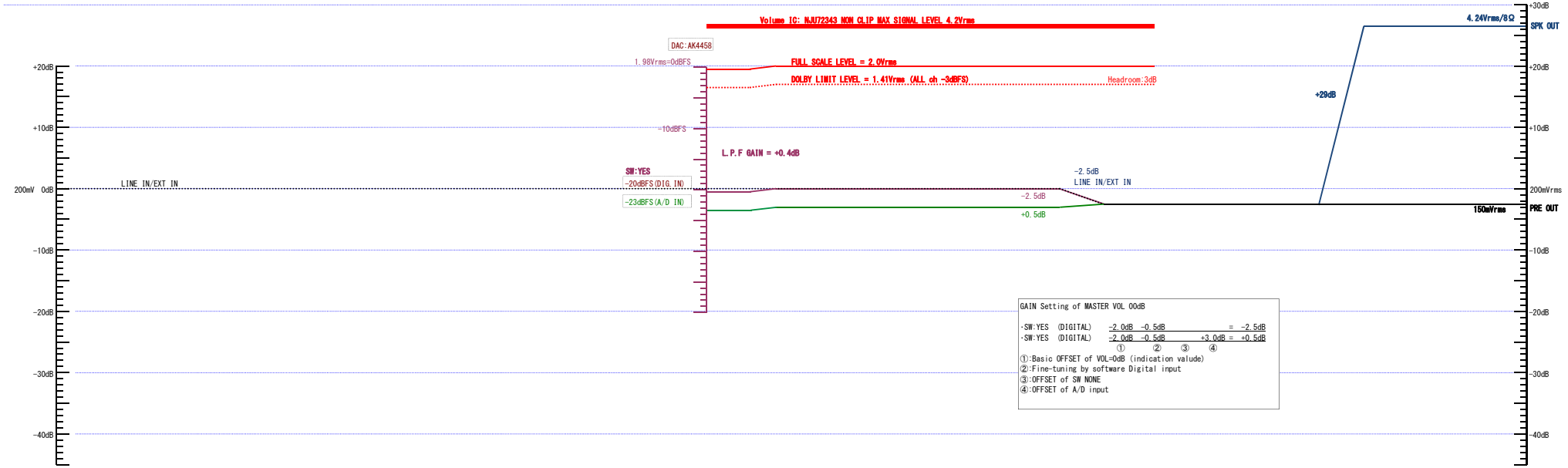
AVR-X3700H
LEVEL DIAGRAM
SUBWOOFER ch





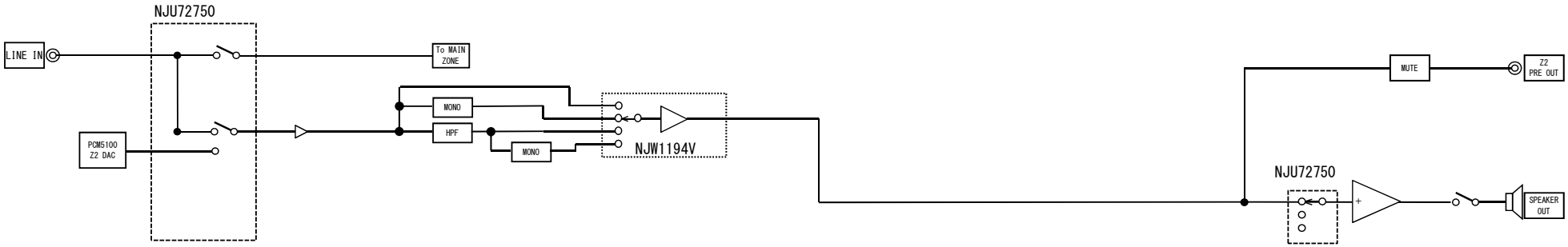
AVR-X3700H
LEVEL DIAGRAM
CENTER/SURROND
ASSIGN1/2 (SURROUND BACK/HEIGHT1/HEIGHT2) ch



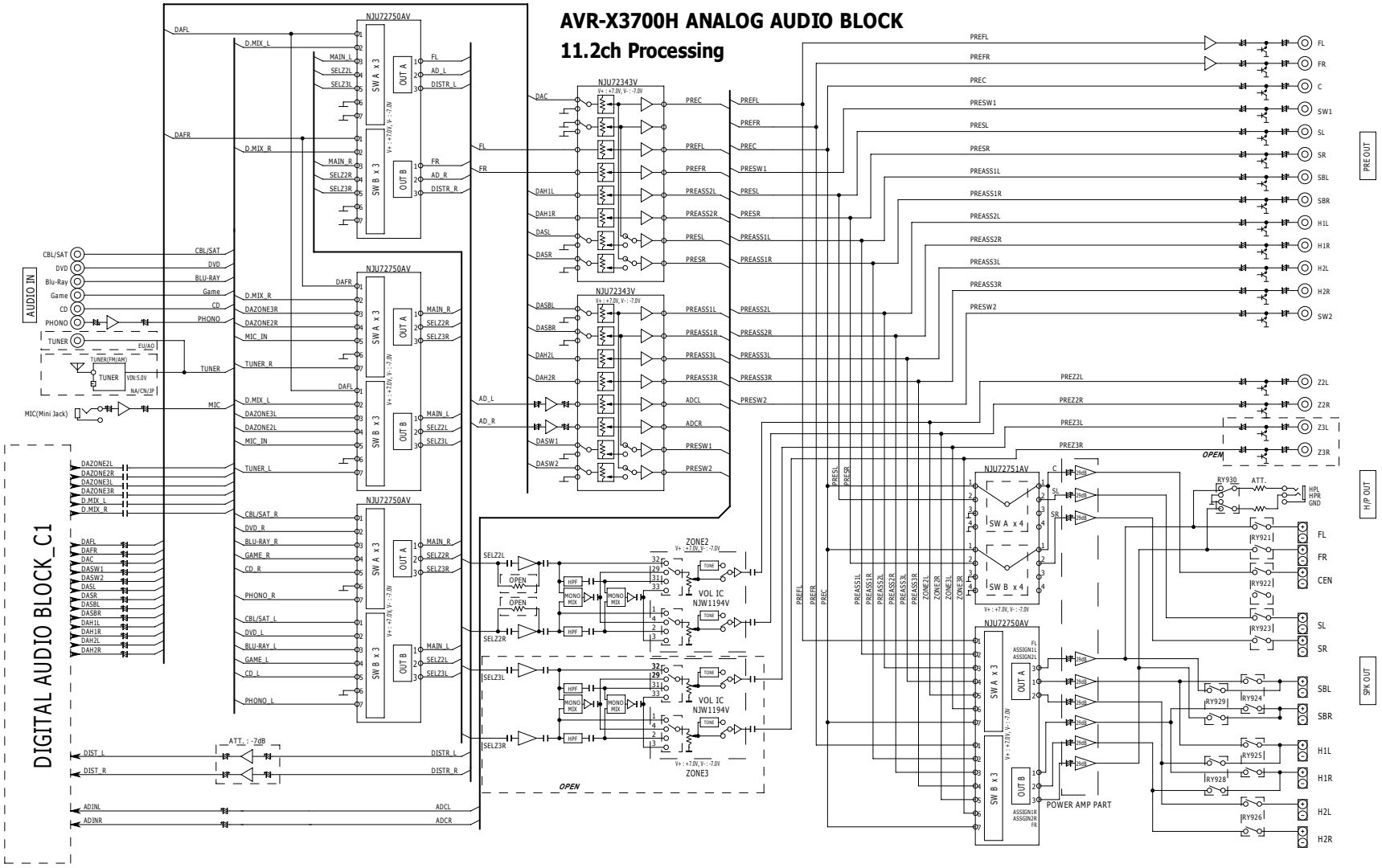


AVR-X3700H
LEVEL DIAGRAM

ZONE2

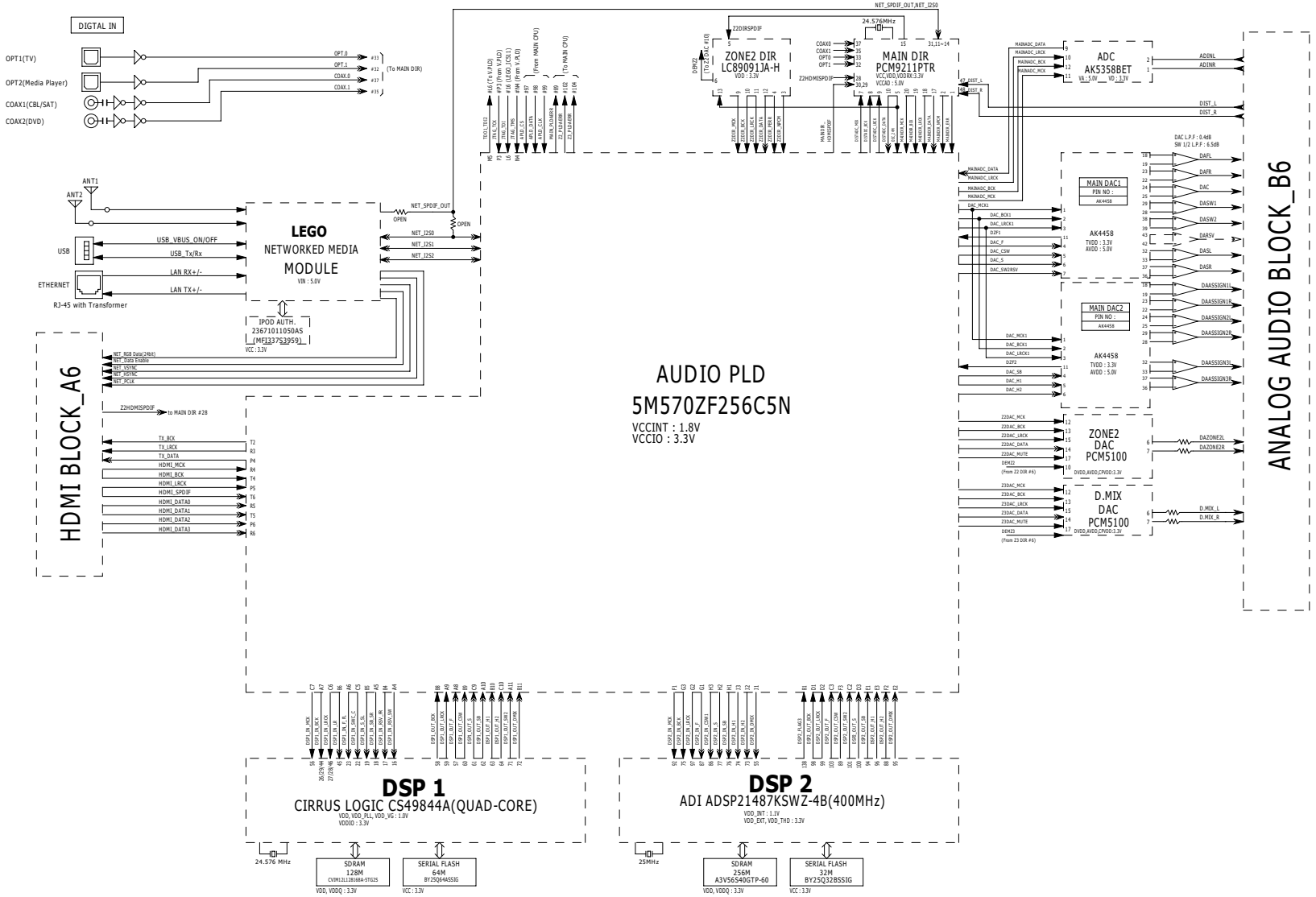


ANALOG AUDIO DIAGRAM



This DIGITAL AUDIO DIAGRAM describes the product with the following serial No.
Serial Number : until DBCxxxxx69999

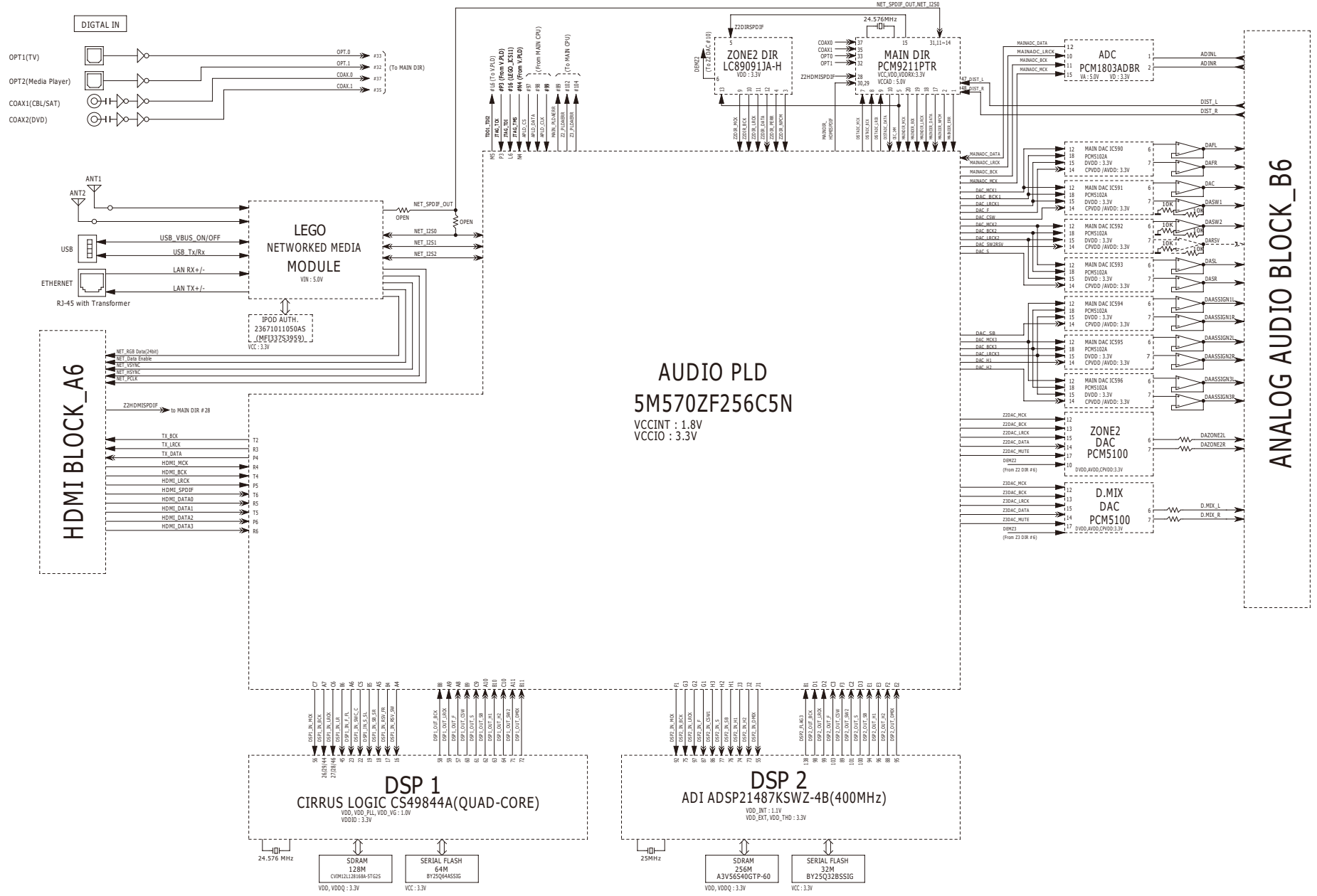
AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)



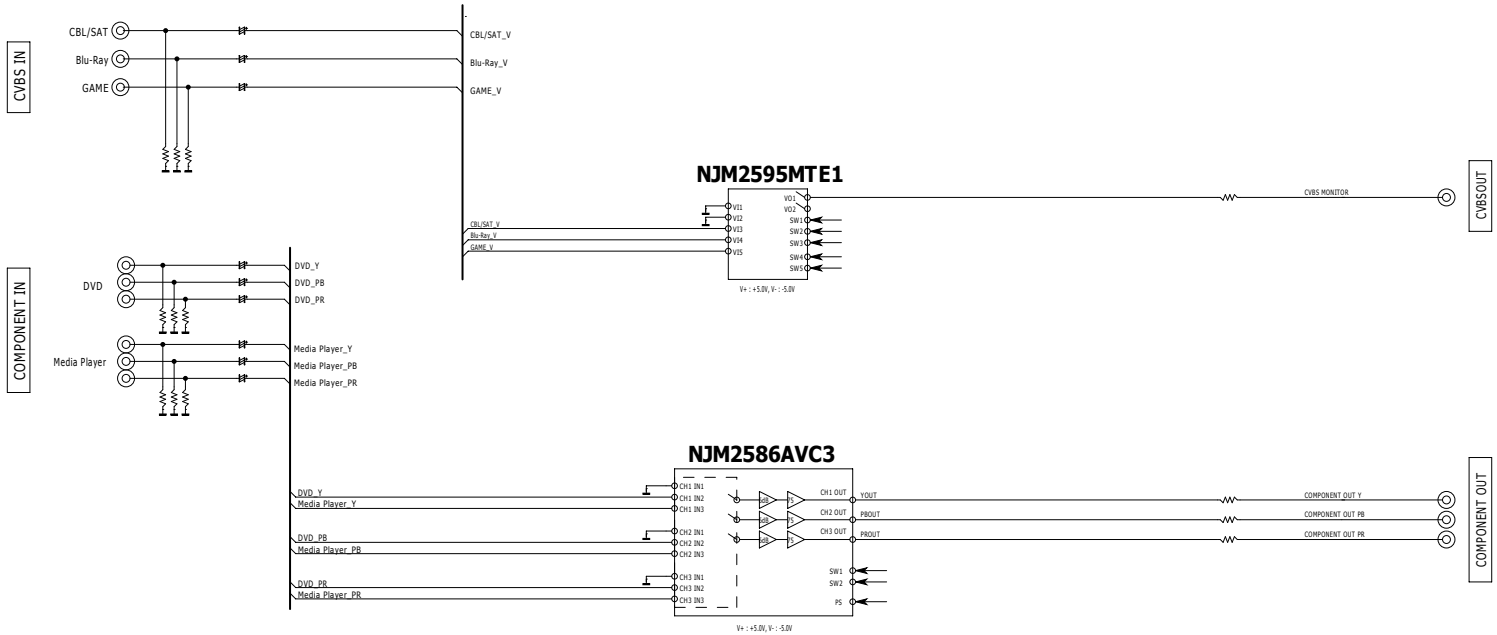
⚠2 DIGITAL AUDIO DIAGRAM NEW

This DIGITAL AUDIO DIAGRAM describes the product with the following serial No.
Serial Number : from DBCxxxxx70001~

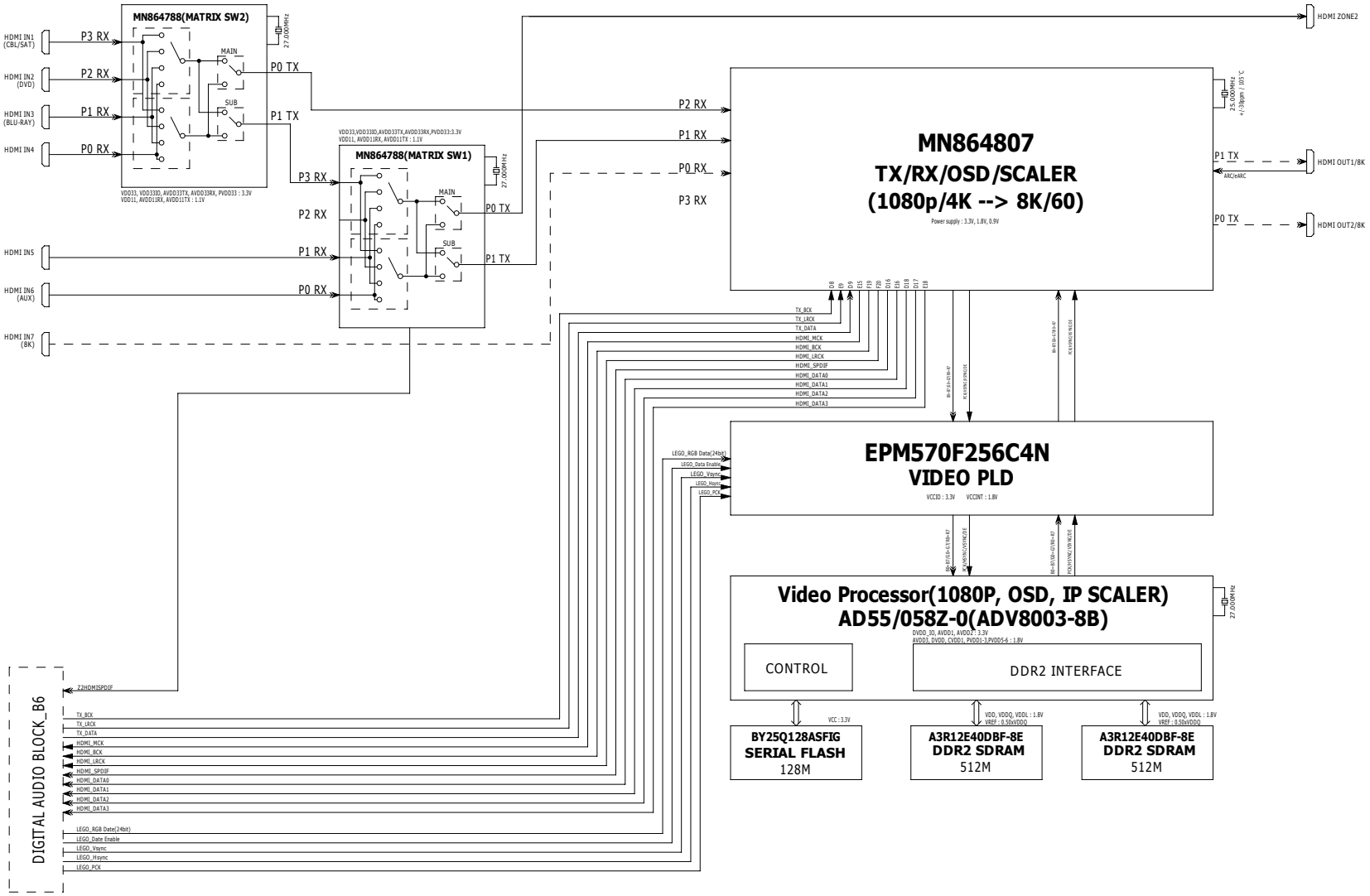
AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)



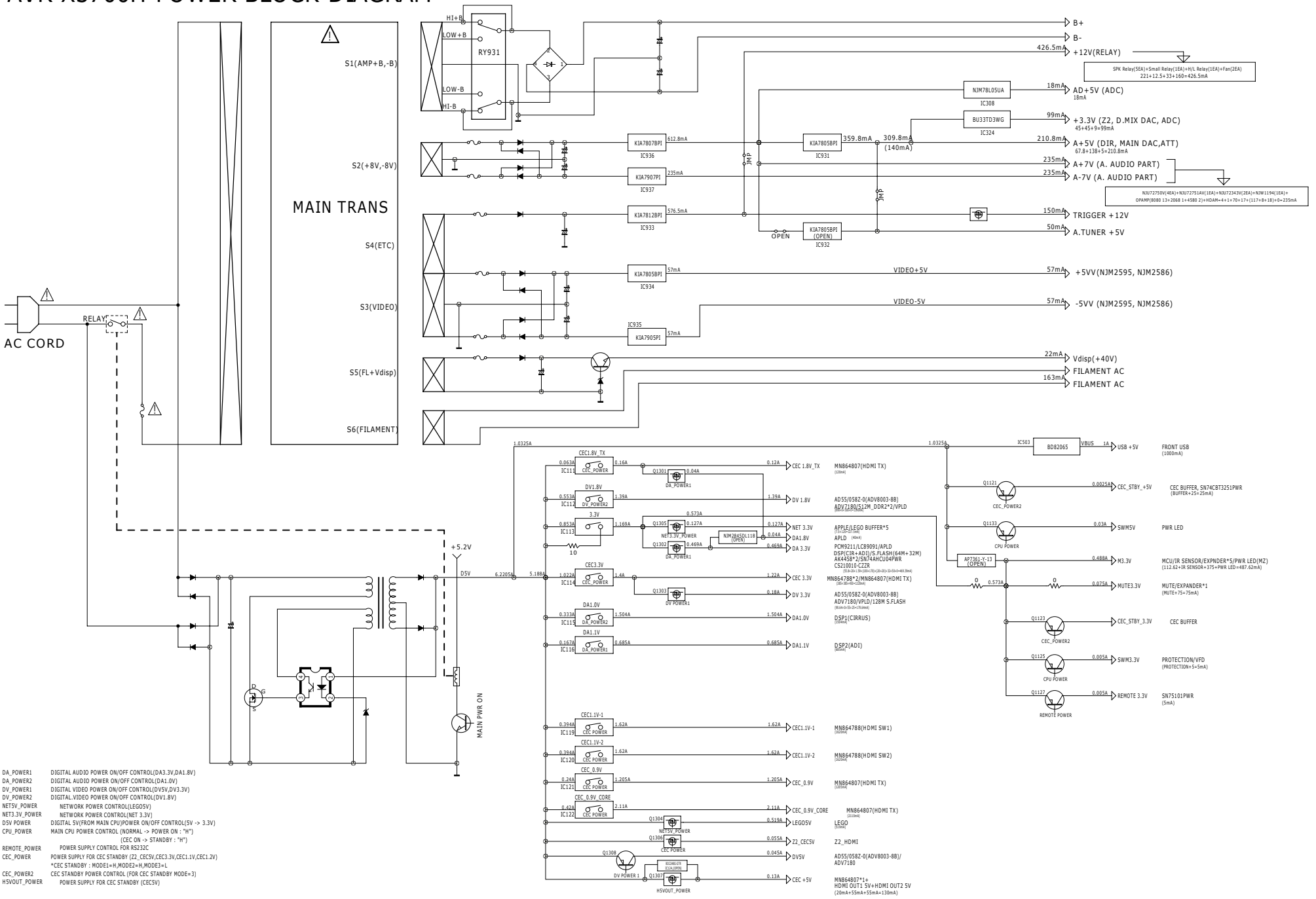
AVR-X3700H ANALOG VIDEO BLOCK



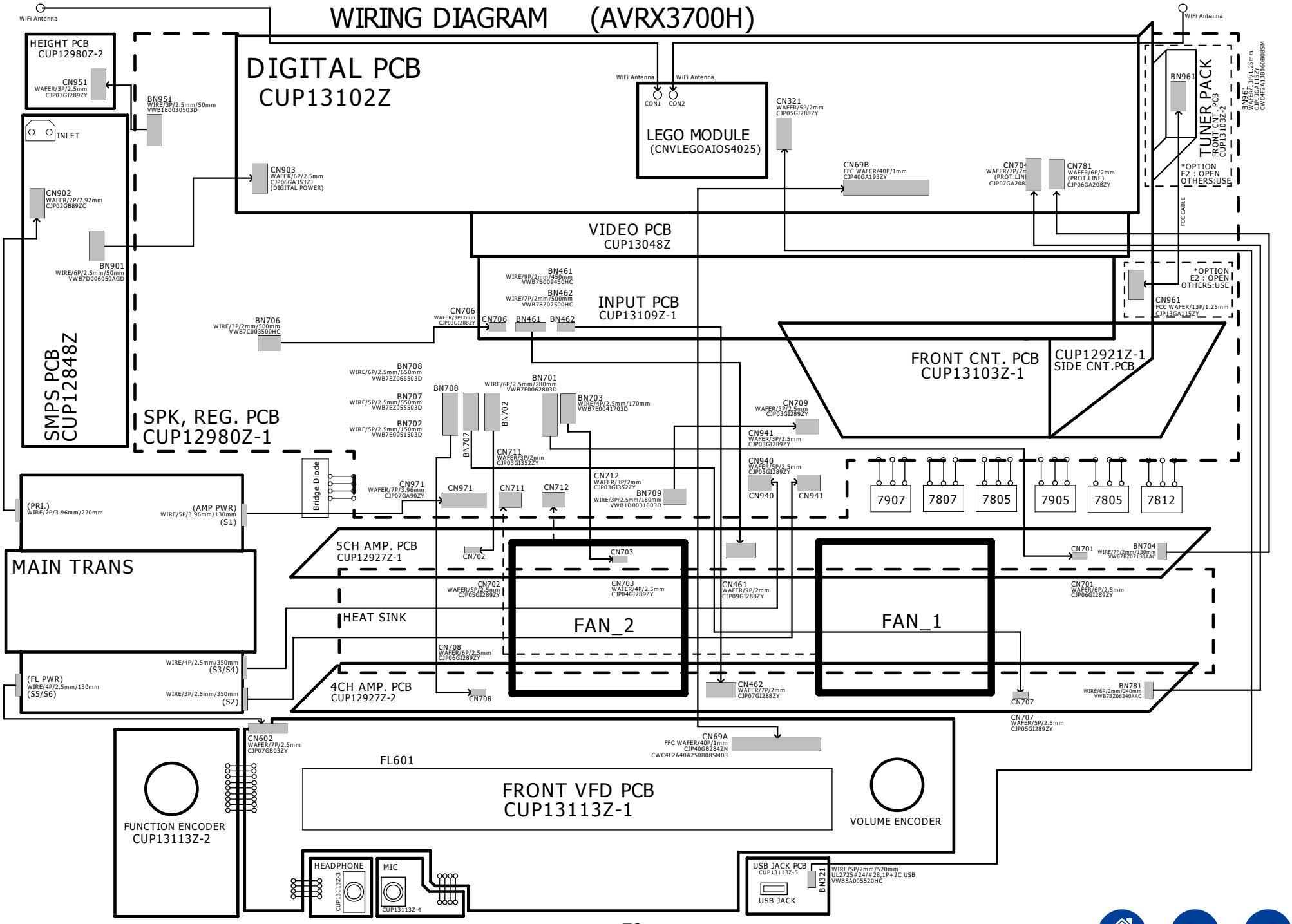
AVR-X3700H HDMI BLOCK



AVR-X3700H POWER BLOCK DIAGRAM



DA_POWER1 DIGITAL AUDIO POWER ON/OFF CONTROL(DA3.3V,DA1.8V)
DA_POWER2 DIGITAL AUDIO POWER ON/OFF CONTROL(DA1.0V)
DV_POWER1 DIGITAL VIDEO POWER ON/OFF CONTROL(DV5V,DV3.3V)
DV_POWER2 DIGITAL.VIDEO POWER ON/OFF CONTROL(DV1.8V)
NET5V_POWER NETWORK POWER CONTROL(LEGO5V)
NET3.3V_POWER NETWORK POWER CONTROL(NET 3.3V)
D5V POWER DIGITAL 5V(FROM MAIN CPU)POWER ON/OFF CONTROL(5V -> 3.3V)
CPU_POWER MAIN CPU POWER CONTROL (NORMAL -> POWER ON : "H")
(CEC ON -> STANDBY : "H")
REMOTE_POWER POWER SUPPLY CONTROL FOR RS232C
CEC_POWER POWER SUPPLY FOR CEC STANDBY (Z2_CEC5V,CEC3.3V,CEC1.1V,CEC1.2V)
*CEC STANDBY : MODE1=H,MODE2=H,MODE3=L
CEC_POWER2 CEC STANDBY POWER CONTROL (FOR CEC STANDBY MODE=3)
H5VOUT_POWER POWER SUPPLY FOR CEC STANDBY (CEC5V)

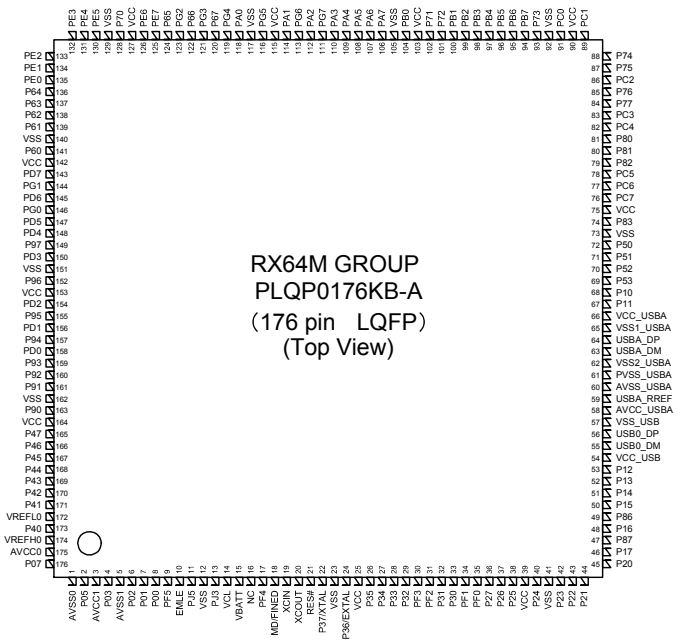

WIRING DIAGRAM (AVRX3700H)
DIGITAL PCB
CUP13102Z
HEIGHT PCB
CUP12980Z-2
CN951
WAFER/3P/2.5mm
CJP03GI289ZY
BN951
WIRE/3P/2.5mm/50mm
VWB1E0030503D
INLET
CN902
WAFER/2P/7.92mm
CJP02GB892C
BN901
WIRE/6P/2.5mm/50mm
VWB7D006050AGD
SMPS PCB
CUP12848Z
CN903
WAFER/6P/2.5mm
CJP06GA353ZJ
(DIGITAL POWER)
WiFi Antenna
WiFi Antenna
WiFi Antenna
CON1
CON2
LEGO MODULE
(CNVLEGOAIOS4025)
CN321
WAFER/5P/2mm
CJP05GI288ZY
CN69B
FFC WAFER/40P/1mm
CJP40GA193ZY
CN704
CN781
WAFER/6P/2mm
(PROT.LINE)
CJP06GA208ZY
TUNER PACK
FR.CNT CNT PCB
CUP13103Z-2
BN961
*OPTION
E2 : OPEN
OTHERS:USE
FCC CABLE
VIDEO PCB
CUP13048Z
BN461
WIRE/9P/2mm/450mm
VWB7B0094504C
BN462
WIRE/7P/2mm/500mm
VWB7BZ07500HC
INPUT PCB
CUP13109Z-1
CN706
WAFER/3P/2mm
CJP03GI288ZY
BN706
WIRE/3P/2mm/500mm
VWB7C003500HC
CN961
FCC WAFER/13P/1.25mm
CJP13GA115ZY
FRONT CNT. PCB
CUP13103Z-1
CUP12921Z-1
SIDE CNT.PCB
SPK, REG. PCB
CUP12980Z-1
BN708
WIRE/6P/2.5mm/650mm
VWB7EZ066503D
BN707
WIRE/5P/2.5mm/550mm
VWB7EZ055503D
BN702
WIRE/5P/2.5mm/150mm
VWB7E0051503D
BN701
WIRE/6P/2.5mm/280mm
VWB7E0062803D
BN703
WIRE/4P/2.5mm/170mm
VWB7E0041703D
CN709
WAFER/3P/2.5mm
CJP03GI289ZY
CN941
WAFER/3P/2.5mm
CJP03GI289ZY
CN711
WAFER/3P/2mm
CJP03GI352ZY
CN712
WAFER/3P/2mm
CJP03GI352ZY
CN940
WAFER/5P/2.5mm
CJP05GI289ZY
BN709
WIRE/3P/2.5mm/180mm
VWB1D0031803D
CN971
WAFER/7P/3.96mm
CJP07GA902ZY
Bridge Diode
(PRI.)
WIRE/2P/3.96mm/220mm
(AMP PWR)
WIRE/5P/3.96mm/130mm
(S1)
MAIN TRANS
7907
7807
7805
7905
7805
7812
5CH AMP. PCB
CUP12927Z-1
CN702
WAFER/5P/2.5mm
CJP05GI289ZY
CN703
WAFER/4P/2.5mm
CJP04GI289ZY
CN461
WAFER/9P/2mm
CJP09GI288ZY
CN701
WAFER/6P/2.5mm
CJP06GI289ZY
BN704
WIRE/7P/2mm/130mm
VWB7BZ07130AAC
HEAT SINK
FAN_2
FAN_1
CN708
WAFER/6P/2.5mm
CJP06GI289ZY
4CH AMP. PCB
CUP12927Z-2
CN462
WAFER/7P/2mm
CJP07GI288ZY
CN707
WAFER/5P/2.5mm
CJP05GI289ZY
BN781
WIRE/6P/2mm/240mm
VWB7BZ06240AAC
WIRE/4P/2.5mm/350mm
(S3/S4)
(FL PWR)
WIRE/4P/2.5mm/130mm
(S5/S6)
WIRE/3P/2.5mm/350mm
(S2)
CN602
WAFER/7P/2.5mm
CJP07GB03ZY
CN69A
FFC WAFER/40P/1mm
CJP40GB284ZN
CWC4F2A40A250B08SM03
FL601
FRONT VFD PCB
CUP13113Z-1
VOLUME ENCODER
FUNCTION ENCODER
CUP13113Z-2
HEADPHONE
MIC
CUP13113Z-3
CUP13113Z-4
USB JACK PCB
CUP13113Z-5
USB JACK
BN321
WIRE/5P/2mm/520mm
UL2725#24/#28,1P+2C USB
VWB8A005520HC

SEMICONDUCTORS

Only major semiconductors are shown, general semiconductors etc. are omitted to list.
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

1. IC's

R5F564MJCDFC (DIGITAL : IC151)



R5F56108VNFP Terminal Functions

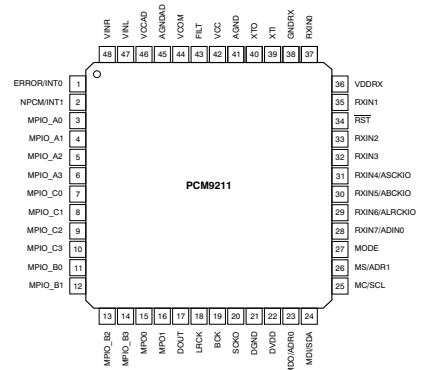
Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
1	AVSS0	AVSS0	-		-	-	-	Ground pin
2	P05/IRQ13	POWER_KEY	I	M3VPu	I	I	I	Detect Power switch (Release from wait mode, set to interrupt)
3	AVCC1	AVCC1	-		-	-	-	Power supply pin
4	P03/IRQ11	RED_LED	O		L/H	L	H	POWER/STANDBY LED control pin
5	AVSS1	AVSS1	-		-	-	-	Ground pin
6	P02/SCK6/IRQ10/ AN120	DSP2CS	O	DA3VPu	L	L	L	DSP(ADI) control pin
7	P01/RXD6/IRQ9/ AN119	RXD_MI232O	I	Pd	I	I	I	External data input port (for AMX/FW update via 232C): Connector is FFC
8	P00/TXD6/IRQ8/ AN118	TXD_MO232I	O		L	L	L	External data output port (for AMX/FW update via 232C): Connector is FFC
9	PF5/IRQ4	WHITE_LED (X3700H (NA)) / GREEN_LED (X3700H (EU/CH), SR6015 (ALL))	O		L	L	L	POWER LED control pin
10	EMLE	EMLE	I	Pd	-	-	-	E20 Emulator control pin (On chip Emulator is used, this pin should be High. When it is not used, it should be Low)
11	PJ5	VSEL_A	I	SW3VPu	I	I	I	Master Volume (Rotary encoder) signal input pin
12	VSS	VSS	-		-	-	-	Ground pin
13	PJ3	VSEL_B	I	SW3VPu	I	I	I	Master volume (Rotary encoder) signal input pin
14	VCL	VCL	I		-	-	-	Smoothing capacitor connection pin
15	VBATT	VBATT	-		-	-	-	Power supply pin
16	NC	NC	I	Pd	-	-	-	NC(Pull down)
17	TRST#/PF4	TRST#/NC (NORMAL)	I/I	Pd	I/I	I/I	I/I	E20 Emulator control pin / When normal operating mode, set to input
18	MD/FINED	MD	I	M3VPu	I	I	I	Pins for setting the operating mode (Select the Boot mode, User boot mode, or Single chip mode)
19	XCIN	XCIN	I	Pd	-	-	-	NC(Pull down)
20	XCOUT	XCOUT	I		-	-	-	NC(open)
21	RES#	RESET	I	M3VPu	-	-	-	Reset signal input pin
22	XTAL/P37	XTAL	I		-	-	-	Pins for a crystal resonator (Xin: 12MHz × 10)
23	VSS	VSS	-		-	-	-	Ground pin
24	EXTAL/P36	EXTAL	-		-	-	-	Pins for a crystal resonator (Xin: 12MHz × 10)
25	VCC	VCC	-		-	-	-	Power supply pin
26	UPSEL/P35(IN)/NMI	NC (X3700H) / COMP_ DET (SR6015)	I	SW3VPu	I	I	I	Component video signal detect pin
27	P34/SCK6/SCK0/ IRQ4	BDOWN	I	M3VPu	I	I	I	Detect power down
28	P33/TIOCD0/RXD6/ RXD0/IRQ3-DS	RC_IN	I	M3VPu	I	I	I	Remote input
29	P32/TIOCC0/TXD6/ TXD0/IRQ2-DS	NC(X3700H) / FLASHER_IN (SR6015)	O/I	Pd	L/I	L/I	L/I	IR Flasher control signal input (When standby mode, set to interrupt)
30	TMS/PF3	TMS/ NC(NORMAL)	I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/When normal operating mode, set to input.
31	TDI/PF2/RXD1	TDI/RXD_ MITSUBISHI	I/I/I	M3VPu	-/-/I	-/-/I	I	E20 Emulator control pin/Mitsubishi writer control pin/ When normal operating mode, set to input.
32	P31/IRQ1-DS	TU_INT (X3700H/ SR6015 (NA/CH/JP)) / NC (X3700H/SR6015 (EU))	I		L	L	L	TUNER control
33	P30/RXD1	TU_SDA (X3700H/ SR6015 (NA/CH/JP)) / NC (X3700H/SR6015 (EU))	I_O		L	L	L	TUNER control
34	TCK/FINEC/PF1/ SCK1	TCK/NC (NORMAL)	I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/When normal operating mode, set to input.
35	TD0/TXD1/PF0	TDO/TXD_ MITSUBISHI	O/O/I	M3VPu	-/-/I	-/-/I	I	E20 Emulator control pin/Mitsubishi writer control pin/ When normal operating mode, set to input.
36	P27/SCK1	TU_SEN (X3700H/ SR6015 (NA/CH/JP)) / NC (X3700H/SR6015 (EU))	O		L	L	L	TUNER control
37	P26/TXD1	TU_SCL (X3700H/ SR6015 (NA/CH/JP)) / NC (X3700H/SR6015 (EU))	O		L	L	L	TUNER control
38	P25/RXD3	VOL_DATA	O		L	L	L	Volume control pin (NJU72343)
39	VCC	VCC	-		-	-	-	Power supply pin
40	P24/SCK3	NC(X3700H) / KILL_ IR(SR6015)	O		L	L	L	Front IR disable control pin
41	VSS	VSS	-		-	-	-	Ground pin
42	P23/TXD3	E_RTS_MOEI	O	Pd (BCM58305 Internal Pd)	L	L	L	Network module control pin
43	P22/SCK0	E_CTS_MIEO	I	Pd (on board + BCM58305 Internal Pd)	I	I	I	Network module control pin
44	P21/RXD0/IRQ9	E_RXD_MIEO	I	Pd (on board + BCM58305 Internal Pd)	I	L	I	Network module control pin
45	P20/TXD0/IRQ8	E_TXD_MOEI	O	Pd (BCM58305 Internal Pd)	L	L	L	Network module control pin
46	P17/SCK1/TXD3/ IRQ7	NET_FACT_ RST	O(ODR)	Pu (BCM58305 Internal Pu)	Z	Z	Z	Network module control pin
47	P87/TXD10/TIOCA2	NC(X3700H) / RC_ OUT(SR015)	O		L/H	L/L	L/H	Remote code (RC-5) output pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
48	P16/TXD1/RXD3/ IRQ6	NET5V_ POWER	O		L	L	L	Network power supply control pin
49	P86/RXD10	SEL_DATA	O		L	L	L	Audio selector control pin (NJU72750)
50	P15/RXD1/SCK3/ IRQ5	AEXP_STB	O		L	L	L	Expander (MC14094) control pin
51	P14/IRQ4	AEXP_OE	O	Pd	L	L	L	Expander (MC14094) control pin
52	P13/TXD2/IRQ3	AEXP_CLK	O		L	L	L	Expander (MC14094) control pin
53	P12/RXD2/IRQ2	AEXP_DATA	O		L	L	L	Expander (MC14094) control pin
54	VCC_USB	VCC_USB	-		-	-	-	Power supply pin
55	USB0_DM	USB0_DM	-		-	-	-	NC(open)
56	USB0_DP	USB0_DP	-		-	-	-	NC(open)
57	VSS_USB	VSS_USB	-		-	-	-	Ground pin
58	AVCC_USBA	AVCC_USBA	-		-	-	-	Power supply pin
59	USBA_PREF	USBA_PREF	-		-	-	-	NC(open)
60	AVSS_USBA	AVSS_USBA	-		-	-	-	Ground pin
61	PVSS_USBA	PVSS_USBA	-		-	-	-	Ground pin
62	VSS2_USBA	VSS2_USBA	-		-	-	-	Ground pin
63	USBA_DM	USBA_DM	-		-	-	-	NC(open)
64	USBA_DP	USBA_DP	-		-	-	-	NC(open)
65	VSS1_USBA	VSS1_USBA	-		-	-	-	Ground pin
66	VCC_USBA	VCC_USBA	-		-	-	-	Power supply pin
67	P11/SCK2/IRQ1	CEC_OUT	O		L	L	-	CEC-D control pin
68	P10/IRQ0	CEC_IN	I	CEC_ STBY3VPu	I	I	I	CEC-D control pin
69	P53	ADV8003_ SPI_CS	O	DV3VPu	L	L	L	GUI (ADV8003) control pin
70	P52/RXD2	ADV8003_ SPI_MI	I		L	L	L	GUI (ADV8003) control pin
71	P51/SCK2	ADV8003_ SPI_CLK	O		L	L	L	GUI (ADV8003) control pin
72	P50/TXD2	ADV8003_ SPI_MO	O	DV3VPu	L	L	L	GUI (ADV8003) control pin
73	VSS	VSS	-		-	-	-	Ground pin
74	P83/SCK10	IP_RST	O	Pd	I	I	L	Scaler w/GUI (ADV8003) Reset control pin
75	VCC	VCC	-		-	-	-	Power supply pin
76	UB/PC7/TXD8/ IRQ14	UB	I	Pd	-	-	-	Pins for setting the boot mode (select the Boot Mode or User Boot Mode)
77	PC6/RXD8/IRQ13	AVSDA	I/O	CEC3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ADV7180
78	PC5/SCK8	AVSCL	I/O	CEC3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ADV7180
79	P82/TXD10	DSP_MOSI	O	DA3VPu	L	L	L	DSP (CS49844A) control pin
80	P81/RXD10	DSP_MISO	I	DA3VPu	L	L	L	DSP (CS49844A) control pin
81	P80/SCK10	DSP_CLK	O	DA3VPu	L	L	L	DSP (CS49844A) control pin
82	PC4/SCK5	DSP_CS	O	DA3VPu	L	L	L	DSP (CS49844A) control pin
83	PC3/TXD5	DSP_FLAG0	I	DA3VPu	L	L	L	DSP (CS49844A) interrupt signal input pin
84	P77/TXD11	DSP2_MOSI	O	DA3VPu	L	L	L	DSP (ADI) control pin
85	P76/RXD11	DSP2_MISO	I	DA3VPu	L	L	L	DSP (ADI) control pin
86	PC2/RXD5	DSP_RST	O	Pd	L	L	L	DSP (CS49844A) reset control pin
87	P75/SCK11	DSP2_CLK	O	DA3VPu	L	L	H	DSP (ADI) control pin
88	P74	DSP_ROM_ WRITE	O		L	L	L	DSP ROM writing control (When writing, set to High)
89	PC1/SCK5/IRQ12	DAC_PLD_ERR	I		L	L	L	Detect PLD error (from Audio PLD)
90	VCC	VCC	-		-	-	-	Power supply pin
91	PC0/IRQ14	TTL_SEL_A	O		L	L	L	Video PLD control pin (select for A to H/NET/HDMI)
92	VSS	VSS	-		-	-	-	Ground pin
93	P73	TTL_SEL_B	O		L	L	L	Video PLD control pin (select for A to H/NET/HDMI)
94	PB7/TXD9	HSDA	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788/MN864807
95	PB6/RXD9	HSCL	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788/MN864807
96	PB5/SCK9	THERMAL_ FAN	I	SW3VPu	I	L	I	Protection detect signal input pin (for Heat sink)
97	PB4	APLD_CS	O		L	L	L	Audio PLD (5M570ZF256C5N) control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
98	PB3/SCK4/SCK6	APLD_DATA/ DAC_DATA	O		L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
99	PB2	APLD_CLK/ DAC_CLK	O		L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
100	PB1/TXD4/TXD6/ IRQ4-DS	DAC_MS	O		L	L	L	DAC (AK4458VN) control pin
101	P72	DAC_RST	O	Pd	L	L	L	DAC (AK4458VN) control pin
102	P71	Z2PLD_ERR	I		L	L	L	Detect PLD error (from Audio PLD)
103	VCC	VCC	-		-	-	-	Power supply pin
104	PB0/RXD4/RXD6/ IRQ12	TX_FAN	O		L	L	L	HDMI TX FAN control (ON:"H")
105	VSS	VSS	-		-	-	-	Ground pin
106	PA7	ISEL_A	I	SW3VPu	I	I	I	Input selector (Rotary encoder) signal input pin
107	PA6	ISEL_B	I	SW3VPu	I	I	I	Input selector (Rotary encoder) signal input pin
108	PA5	VOL_CLK	O		L	L	L	Volume control pin (NJU72343)
109	PA4/TXD5/SSDA5/ IRQ5-DS	DSP_BUSY	I	DA3VPu	L	L	L	DSP BUSY signal input
110	PA3/RXD5/SSCL5	MVOL_MUTE	O	Pd	L	L	L	Volume control pin (NJU72343)
111	TRDATA3/PG7	REMOTE_ POWER(232C)	O		L	L	L	232C power supply (REMOTE 3.3V) control pin
112	PA2/RXD5	DA_POWER2	O	Pd	L	L	L	Digital audio power supply (DA1.0V) control pin
113	TRDATA2/PG6	ZVOL_DATA	O		L	L	L	ZONE 2 volume control pin (NJW1194)
114	PA1/SCK5/IRQ11	ZVOL_CLK	O		L	L	L	ZONE 2 volume control pin (NJW1194)
115	VCC	VCC	-		-	-	-	Power supply pin
116	TRCLK/PG5	ZVOL_STB	O		L	L	L	ZONE 2 volume control pin (NJW1194)
117	VSS	VSS	-		-	-	-	Ground pin
118	PA0	H5V_DET	I		I	I	I	HDMI IN 5V detect signal pin
119	TRSYNC/PG4	FL_RST	O		L	L	L	FL display control pin
120	P67/IRQ15	FL_CE	O		L	L	L	FL display control pin
121	TRDATA1/PG3	FL_CLK	O		L	L	L	FL display control pin
122	P66	FL_DATA	O		L	L	L	FL display control pin
123	TRDATA0/PG2	H5VOUT_ POWER	O		L	L	L	HDMI 5V power supply control pin
124	P65	NC(X3700H) / FIL_ CTRL(SR6015)	O		L	L	L	Filament Power control pin (for Porthole FLD)
125	PE7/IRQ7/AN105	ASO/DC_DET	I	SW3VPu	I	I	I	Protection detect signal input pin (for ASO and DC) (A/D converter)
126	PE6/IRQ6/AN104	MIC_DET/_H/ P_DET	I	SW3VPu	I	I	I	Headphone insert detect pin/Microphone insert detect pin (A/D converter)
127	VCC	VCC	-		-	-	-	Power supply pin
128	P70	ADC_RST	O	Pd	I	L	I	A/D convertor (AK5358) reset control pin
129	VSS	VSS	-		-	-	-	Ground pin
130	PE5/IRQ5/AN103	MAIN_POWER	O		L	L	L	Power supply control pin
131	PE4/AN102	CPU_POWER	O		L	L	L	CPU power supply control pin
132	PE3/AN101	AIOS4_ WAKEUP	O		L	L	L	Same as NET5V_POWER,NET3.3V_POWER (This port use to control for Network Module standby mode in the future (Low:Deep Standby, High:normal))
133	PE2/RXD12/IRQ7-DS/AN100	AIOS4_STBY_ STATUS	I		I	I	I	Not used (This port use to detect for Network Module standby status in the future (Low:normal, High:Deep Standby))
134	PE1/TXD12	GUI_WRITE	O		L	L	L	GUI flash rom writing control
135	PE0/SCK12	NET3.3V_ POWER	O		L	L	L	Network power supply control (Net3.3V)
136	P64	NC	O		L	L	L	NC
137	P63	CEC_POWER	O		L	L	H	CEC standby power supply control (CEC5V, CEC3.3V, CEC1.8V) (When CEC standby mode3, set to Low)
138	P62	DV_POWER1	O		L	L	L	Digital video power supply (DV5V, DV3.3V) control pin
139	P61	DV_POWER2	O		L	L	L	Digital video power supply (DV1.8V) control pin
140	VSS	VSS	-		-	-	-	Ground pin
141	P60	DIR_DIN	O		L	L	L	DIR (PCM9211) control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
142	VCC	VCC	-		-	-	-	Power supply pin
143	PD7/IRQ7/AN107	DIR_CE	O		L	L	L	DIR (PCM9211) control pin
144	PG1	DIR_DOUT	I	DA3.3Pu	I	I	I	DIR (PCM9211) control pin
145	PD6/IRQ6/AN106	DIR_CLK	O		L	L	L	DIR (PCM9211) control pin
146	PG0	DIR_RST	O	Pd	L	L	L	DIR (PCM9211) control pin
147	PD5/IRQ5/AN113	TX_HAINT	I	Pd	I	I	I	HDMI Tx (MN864807) audio interrupt signal det
148	PD4/IRQ4/AN112	TX_TEMP	I	-	I	I	I	Temperature detection for HDMI Tx (MN864807) (A/D converter)
149	P97	NC(X3700H) / DE_ RST(SR6015)	O	Pd	L	L	L	Video decoder (ADV7180) reset control pin
150	PD3/IRQ3/AN111	TX_HINT	I	CEC3VPu	I	I	I	HDMI Tx (MN864807) interrupt signal input pin
151	VSS	VSS	-		-	-	-	Ground pin
152	P96	TX_RST	O	Pd	L	L	H	HDMI Tx (MN864807) reset control pin (When CEC standby mode3, set to reset)
153	VCC	VCC	-		-	-	-	Power supply pin
154	PD2/IRQ2/AN110	SW2_HINT	I	CEC3VPu	I	I	I	HDMI Rx/SW2 (MN864788) interrupt signal input pin
155	P95	SW2_RST	O	Pd	L	L	H	HDMI Rx/SW2 (MN864788) reset control pin (When CEC standby mode3, set to reset)
156	PD1/IRQ1/AN109	SW1_HINT	I	CEC3VPu	I	I	I	HDMI Rx/SW1 (MN864788) interrupt signal input pin
157	P94	SW1_RST	O	Pd	L	L	H	HDMI Rx/SW1 (MN864788) reset control pin (When CEC standby mode3,set to reset)
158	PD0/IRQ0/AN108	DSP2_RST	O		L	L	L	DSP (ADI) reset control pin
159	P93/AN117	THERMAL_TR	I	SW3VPu	I	L	I	Protection detect signal input pin (for power TR)
160	P92/RXD7/AN116	DA_POWER1	O		L	L	L	Digital audio power supply (DA3.3V, DA1.2V) control pin
161	P91/AN115	THERMAL_H	I	SW3VPu	I	L	I	Protection detect signal input pin (for Heat sink)
162	VSS	VSS	-		-	-	-	Ground pin
163	P90/TXD7/AN114	TEMP_ SENSOR	I	NET3.3VPu	I	L	I	Temperature sensor input pin (for SRM)
164	VCC	VCC	-		-	-	-	Power supply pin
165	P47/IRQ15-DS/ AN007	DSP2FLAG0	I	Pd	L	L	L	DSP (ADI) interrupt signal input pin
166	P46/IRQ14-DS/ AN006	CURRENT_DET	I	Pd	I	L	I	Current level monitor pin (A/D converter)
167	P45/IRQ13-DS/ AN005	AMPSIGDET	I	Pd	I	L	I	Signal level monitor pin (AD converter)
168	P44/IRQ12-DS/ AN004	MODE	I		I	I	I	Region setting pin
169	P43/IRQ11-DS/ AN003	KEY3	I	M3VPu	I	I	I	Key control signal input pin (When standby mode, set to interrupt)
170	P42/IRQ10-DS/ AN002	KEY2	I	M3VPu	I	I	I	Key control signal input pin (When standby mode, set to interrupt)
171	P41/IRQ9-DS/ AN001	KEY1	I	M3VPu	I	I	I	Key control signal input pin (When standby mode, set to interrupt)
172	VREFL0	VREFL0	-		-	-	-	Ground pin
173	P40	SEL_CLK	O		L	L	L	Audio selector control pin (NJU72750)
174	VREFH0	VREFH0	-		-	-	-	Power supply pin
175	AVCC0	AVCC0	-		-	-	-	Power supply pin
176	P07/IRQ15	CEC_POWER2	O		L	L	H	CEC standby power control (for CEC Standby Mode 3)

PCM9211 (DIGITAL : IC202)



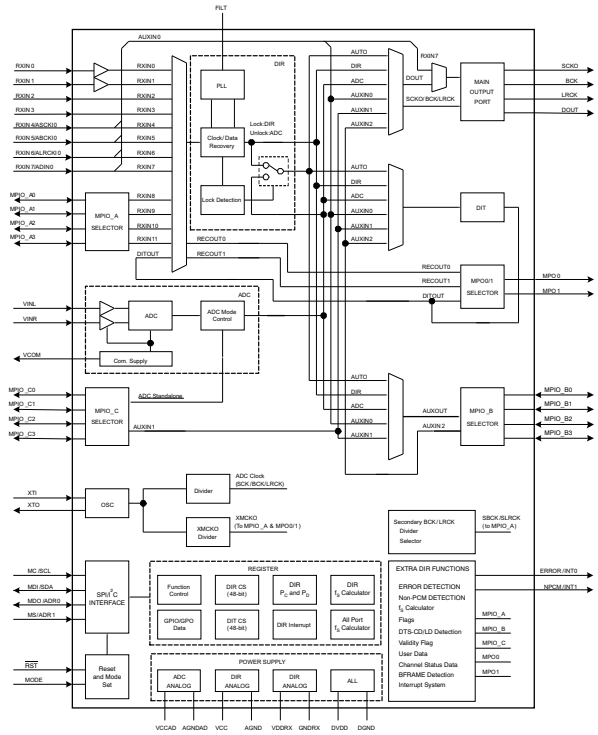
PIN Functions

PIN				DESCRIPTION
NO.	NAME	I/O	5-V TOLERANT	
1	ERROR/INT0	O	No	DIR Error detection output / Interrupt0 output
2	NPCM/INT1	O	No	DIR Non-PCM detection output / Interrupt1 output
3	MPIO_A0	I/O	Yes	Multipurpose I/O, Group A(1)
4	MPIO_A1	I/O	Yes	Multipurpose I/O, Group A(1)
5	MPIO_A2	I/O	Yes	Multipurpose I/O, Group A(1)
6	MPIO_A3	I/O	Yes	Multipurpose I/O, Group A(1)
7	MPIO_C0	I/O	Yes	Multipurpose I/O, Group C(1)
8	MPIO_C1	I/O	Yes	Multipurpose I/O, Group C(1)
9	MPIO_C2	I/O	Yes	Multipurpose I/O, Group C(1)
10	MPIO_C3	I/O	Yes	Multipurpose I/O, Group C(1)
11	MPIO_B0	I/O	Yes	Multipurpose I/O, Group B(1)
12	MPIO_B1	I/O	Yes	Multipurpose I/O, Group B(1)
13	MPIO_B2	I/O	Yes	Multipurpose I/O, Group B(1)
14	MPIO_B3	I/O	Yes	Multipurpose I/O, Group B(1)
15	MPO0	O	No	Multipurpose output 0
16	MPO1	O	No	Multipurpose output 1
17	DOUT	O	No	Main output port, serial digital audio data output
18	LRCK	O	No	Main output port, LR clock output
19	BCK	O	No	Main output port, Bit clock output
20	SCKO	O	No	Main output port, System clock output
21	DGND	–	–	Ground, for digital
22	DVDD	–	–	Power supply, 3.3 V (typ.), for digital
23	MDO/ADR0	I/O	Yes	Software control I/F, SPI data output / I2C slave address setting0(2)
24	MDI/SDA	I/O	Yes	Software control I/F, SPI data input / I2C data input/output(2) (3)
25	MC/SCL	I	Yes	Software control I/F, SPI clock input / I2C clock input(2)

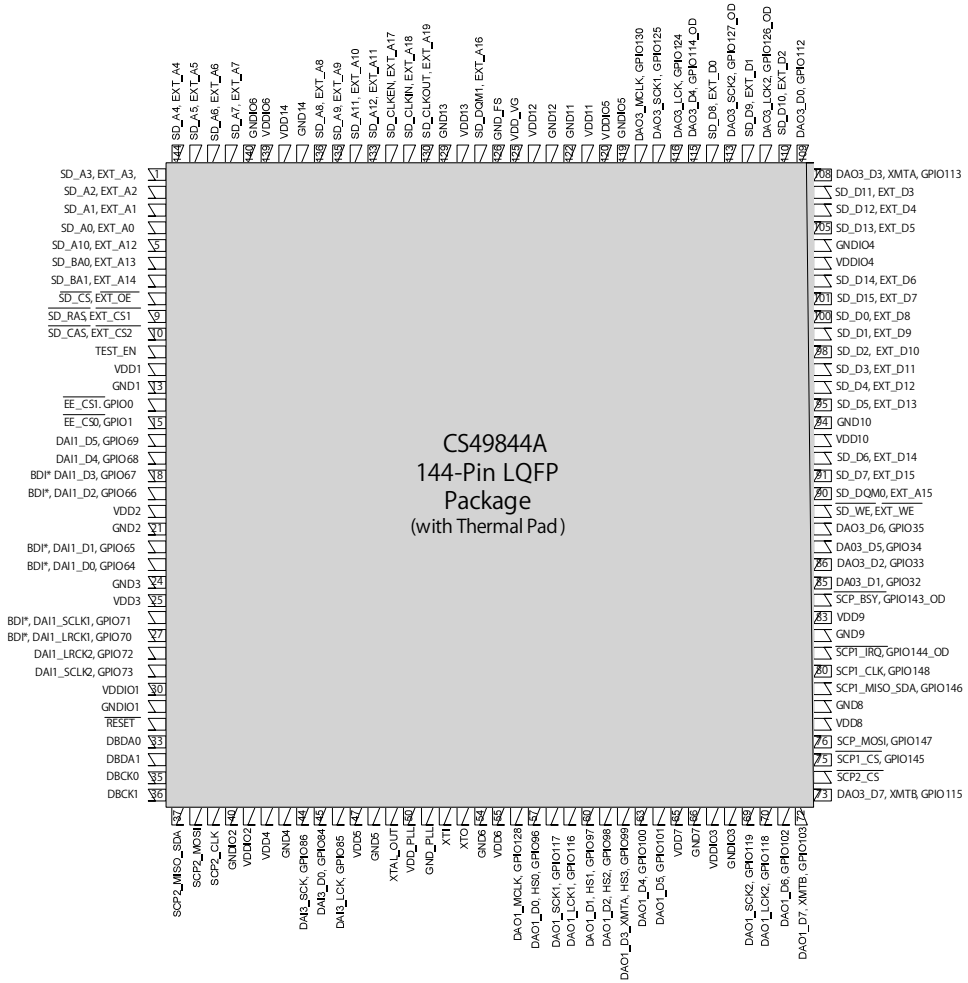
PIN				DESCRIPTION
NO.	NAME	I/O	5-V TOLERANT	
26	MS/ADR1	I	Yes	Software control I/F, SPI chip select / I2C slave address setting1(2)
27	MODE	I	No	Control mode setting, (see the Serial Control Mode section, Control Mode Pin Setting)
28	RXIN7/ADIN0	I	Yes	Biphase signal, input 7 / AUXIN0, serial audio data input(2)
29	RXIN6/ALRCKI0	I	Yes	Biphase signal, input 6 / AUXIN0, LR clock input(2)
30	RXIN5/ABCKI0	I	Yes	Biphase signal, input 5 / AUXIN0, bit clock input(2)
31	RXIN4/ASCKI0	I	Yes	Biphase signal, input 4 / AUXIN0, system clock input(2)
32	RXIN3	I	Yes	Biphase signal, input 3(2)
33	RXIN2	I	Yes	Biphase signal, input 2(2)
34	RST	I	Yes	Reset Input, active low(2) (4)
35	RXIN1	I	Yes	Biphase signal, input 1, built-in coaxial amplifier
36	VDDRX	–	–	Power supply, 3.3 V (typ.), for RXIN0 and RXIN1.
37	RXIN0	I	Yes	Biphase signal, input 0, built-in coaxial amplifier
38	GNDRX	-	-	Ground, for RXIN
39	XTI	I	No	Oscillation circuit input for crystal resonator or external XTI clock source input(5)
40	XTO	O	No	Oscillation circuit output for crystal resonator
41	AGND	–	–	Ground, for PLL analog
42	VCC	–	–	Power supply, 3.3 V (typ.), for PLL analog
43	FILT	O	No	External PLL loop filter connection terminal; must connect recommended filter
44	VCOM	O	No	ADC common voltage output; must connect external decoupling capacitor
45	AGNDAD	–	–	Ground, for ADC analog
46	VCCAD	–	–	Power supply, 5.0 V (typ.), for ADC analog
47	VINL	I	No	ADC analog voltage input, left channel
48	VINR	I	No	ADC analog voltage input, right channel

(1) Schmitt trigger input
(2) Schmitt trigger input
(3) Open-drain configuration in I2C mode
(4) Onboard pull-down resistor (50 k Ω , typical)
(5) CMOS Schmitt trigger input

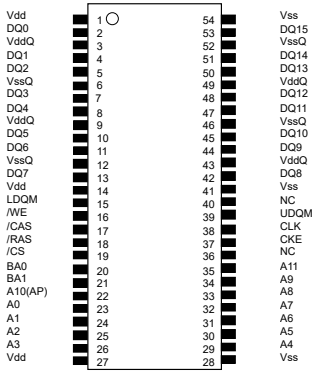
PCM9211 BLOCK DIAGRAM



CS49844A-CQZ (DIGITAL : IC251)

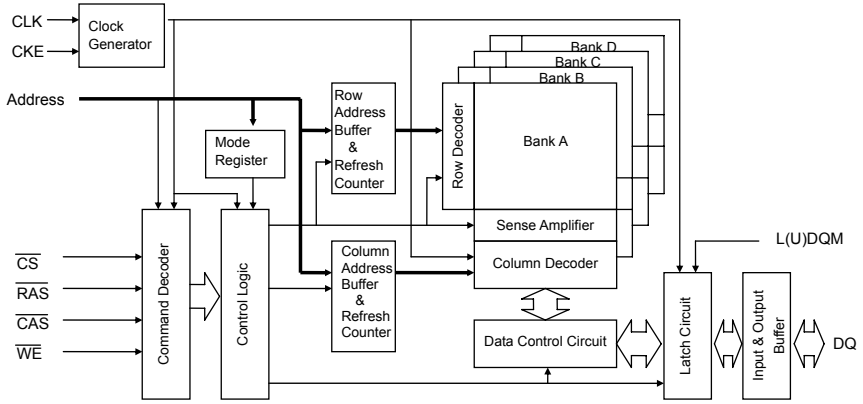


M12L128168A-5TG2S(DIGITAL : IC252)

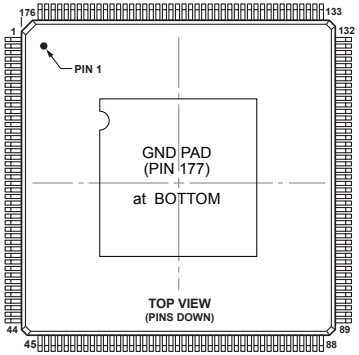


CLK	: Master Clock	U,LDQM	: Output Disable / Write Mask
CKE	: Clock Enable	A0-11	: Address Input
/CS	: Chip Select	BA0,1	: Bank Address
/RAS	: Row Address Strobe	Vdd	: Power Supply
/CAS	: Column Address Strobe	VddQ	: Power Supply for Output
/WE	: Write Enable	Vss	: Ground
DQ0-15	: Data I/O	VssQ	: Ground for Output

Block diagram



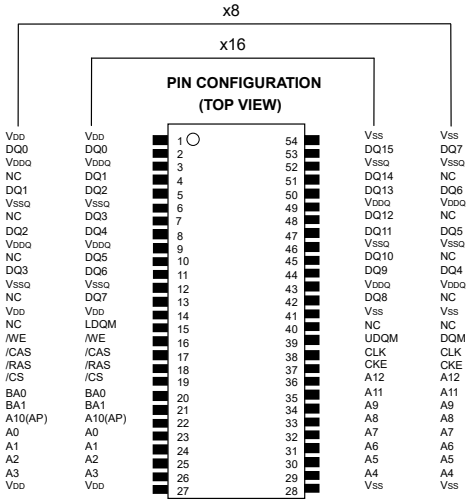
ADSP21487KSWZ4B (DIGITAL : IC281)



Terminal Function

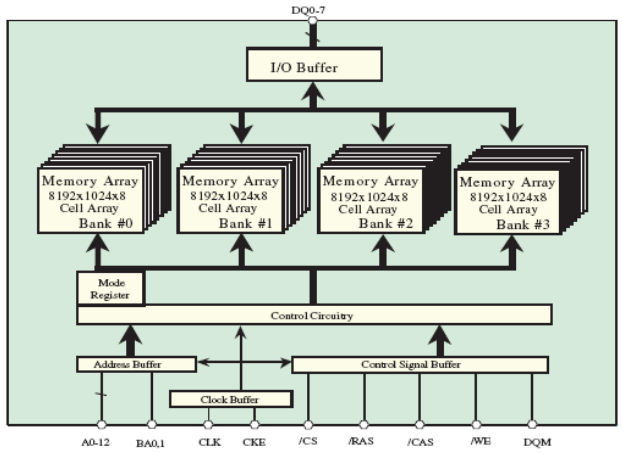
Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.
SDDQM	1	V_{DD_EXT}	45	DAI_P10	89	V_{DD_INT}	133
$\overline{MS0}$	2	DPI_P08	46	V_{DD_INT}	90	FLAG0	134
SDCKE	3	DPI_P07	47	V_{DD_EXT}	91	FLAG1	135
V_{DD_INT}	4	V_{DD_INT}	48	DAI_P20	92	FLAG2	136
CLK_CFG1	5	DPI_P09	49	V_{DD_INT}	93	NC	137
ADDR0	6	DPI_P10	50	DAI_P08	94	FLAG3	138
BOOT_CFG0	7	DPI_P11	51	DAI_P14	95	NC	139
V_{DD_EXT}	8	DPI_P12	52	DAI_P04	96	NC	140
ADDR1	9	DPI_P13	53	DAI_P18	97	V_{DD_EXT}	141
ADDR2	10	DPI_P14	54	DAI_P17	98	NC	142
ADDR3	11	DAI_P03	55	DAI_P16	99	V_{DD_INT}	143
ADDR4	12	NC	56	DAI_P12	100	$\overline{TRST}$	144
ADDR5	13	V_{DD_EXT}	57	DAI_P15	101	NC	145
BOOT_CFG1	14	NC	58	V_{DD_INT}	102	$\overline{EMU}$	146
GND	15	NC	59	DAI_P11	103	DATA0	147
ADDR6	16	NC	60	V_{DD_EXT}	104	DATA1	148
ADDR7	17	NC	61	V_{DD_INT}	105	DATA2	149
NC	18	V_{DD_INT}	62	BOOT_CFG2	106	DATA3	150
NC	19	NC	63	V_{DD_INT}	107	TDO	151
ADDR8	20	NC	64	AMI_ACK	108	DATA4	152
ADDR9	21	V_{DD_INT}	65	GND	109	V_{DD_EXT}	153
CLK_CFG0	22	NC	66	THD_M	110	DATA5	154
V_{DD_INT}	23	NC	67	THD_P	111	DATA6	155
CLKIN	24	V_{DD_INT}	68	V_{DD_THD}	112	V_{DD_INT}	156
XTAL	25	NC	69	V_{DD_INT}	113	DATA7	157
ADDR10	26	$\overline{WDTRSTO}$	70	V_{DD_INT}	114	TDI	158
SDA10	27	NC	71	$\overline{MST}$	115	SDCLK	159
V_{DD_EXT}	28	V_{DD_EXT}	72	V_{DD_INT}	116	V_{DD_EXT}	160
V_{DD_INT}	29	DAI_P07	73	WDT_CLKO	117	DATA8	161
ADDR11	30	DAI_P13	74	WDT_CLKIN	118	DATA9	162
ADDR12	31	DAI_P19	75	V_{DD_EXT}	119	DATA10	163
ADDR17	32	DAI_P01	76	ADDR23	120	TCK	164
ADDR13	33	DAI_P02	77	ADDR22	121	DATA11	165
V_{DD_INT}	34	V_{DD_INT}	78	ADDR21	122	DATA12	166
ADDR18	35	NC	79	V_{DD_INT}	123	DATA14	167
$\overline{RESETOUT/RUNRSTIN}$	36	NC	80	ADDR20	124	DATA13	168
V_{DD_INT}	37	NC	81	ADDR19	125	V_{DD_INT}	169
DPI_P01	38	NC	82	V_{DD_EXT}	126	DATA15	170
DPI_P02	39	NC	83	ADDR16	127	$\overline{SDWE}$	171
DPI_P03	40	V_{DD_EXT}	84	ADDR15	128	$\overline{SDRAS}$	172
V_{DD_INT}	41	V_{DD_INT}	85	V_{DD_INT}	129	$\overline{RESET}$	173
DPI_P05	42	DAI_P06	86	ADDR14	130	TMS	174
DPI_P04	43	DAI_P05	87	$\overline{AMI_WR}$	131	$\overline{SDCAS}$	175
DPI_P06	44	DAI_P09	88	$\overline{AMI_RD}$	132	V_{DD_INT}	176
						GND	177*

A3V56S40GTP-60(DIGITAL : IC282)

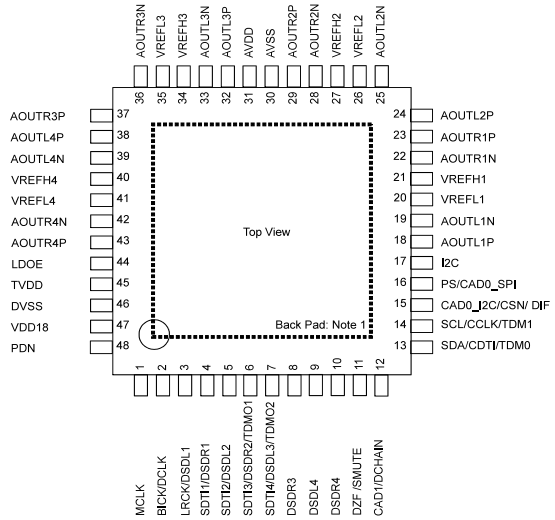


CLK	: Master Clock	DQM	: Output Disable / Write Mask (A3V56S30GTP)
CKE	: Clock Enable	U,L DQM	: Output Disable / Write Mask (A3V56S40GTP)
/CS	: Chip Select	A0-12	: Address Input
/RAS	: Row Address Strobe	BA0,1	: Bank Address
/CAS	: Column Address Strobe	VDD	: Power Supply
/WE	: Write Enable	VDDQ	: Power Supply for Output
DQ0-7	: Data I/O (A3V56S30GTP)	VSS	: Ground
DQ0-15	: Data I/O (A3V56S40GTP)	VSSQ	: Ground for Output

Block Diagram



⚠2 AK4458VN (FRONT CNT : IC571,581) for DIGITAL OLD PCB

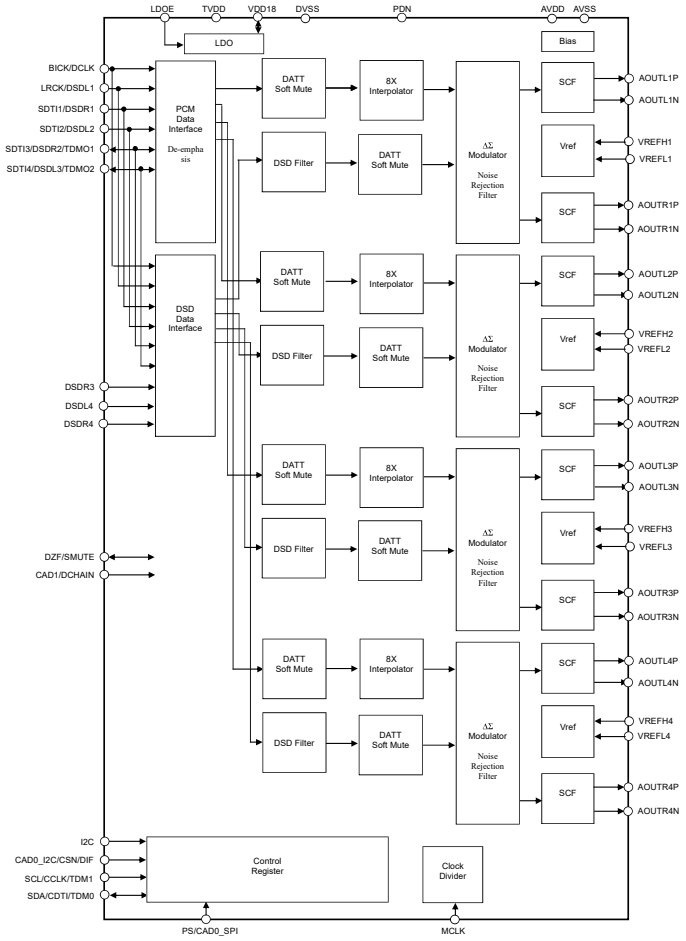


Pin Function

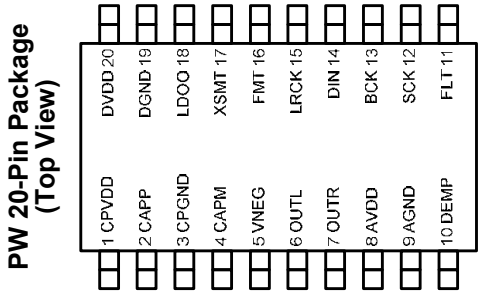
No.	Pin Name	I/O	Function	PD State
1	MCLK	I	External Master Clock Input Pin	Hi-Z
2	BICK	I	Audio Serial Data Clock Pin in PCM mode	Hi-z
	DCLK	I	DSD Clock Pin in DSD mode	
3	LRCK	I	Input Channel Clock Pin in PCM mode	Hi-Z
	DSDL1	I	Audio Serial Data Input in DSD mode	
4	SDTI1	I	Audio Serial Data Input in PCM mode	Hi-Z
	DSDR1	I	Audio Serial Data Input in DSD mode	
5	SDTI2	I	Audio Serial Data Input in PCM mode	Hi-Z
	DSDL2	I	Audio Serial Data Input in DSD mode	
6	SDTI3	I	Audio Serial Data Input in PCM mode	100k Ω Pull down
	DSDR2	I	Audio Serial Data Input in DSD mode	
	TDMO1	O	Audio Serial Data Output in Daisy Chain mode	
7	SDTI4	I	Audio Serial Data Input in PCM mode	100k Ω Pull down
	DSDL3	I	Audio Serial Data Input in DSD mode	
	TDMO2	O	Audio Serial Data Output in Daisy Chain mode	
8	DSDR3	I	Audio Serial Data Input in DSD mode	Hi-Z
9	DSDL4	I	Audio Serial Data Input in DSD mode	Hi-Z
10	DSDR4	I	Audio Serial Data Input in DSD mode	Hi-Z
11	DZF	O	Zero Input Detect in I2C Bus or 3-wire serial control mode	100k Ω Pull down
	SMUTE	I	Soft Mute Pin in Parallel control mode. When this pin is changed to "H", soft mute cycle is initiated. When it is returning to "L", the output mute is released.	
12	CAD1	I	Chip Address 0 Pin in I C Bus or 3-wire serial control mode	Hi-Z
	DCHAIN	I	Daisy Chain Mode select pin in Parallel control mode.	
13	SDA	I/O	Control Data Pin in I2C Bus serial control mode	Hi-Z
	CDTI	I	Control Data Input Pin in 3-wire serial control mode	
	TDM0	I	TDM Mode select pin in Parallel control mode.	
14	SCL	I	Control Data Clock Pin in I2C Bus serial control mode	Hi-Z
	CCLK	I	Control Data Clock Pin in 3-wire serial control mode	
	TDM1	I	TDM Mode select pin in Parallel control mode.	
15	CAD0_I2C	I	Chip Address 0 Pin in I2C Bus serial control mode	Hi-Z
	CSN	I	Chip Select Pin in 3-wire serial control mode	
	DIF	I	Audio Data Format Select in Parallel control mode. "L": 32-bit MSB, "H": 32-bit I2S	
16	PS	I	(I2C pin = "H") Control Mode Select Pin "L": I2C Bus serial control mode, "H": Parallel control mode.	Hi-Z
	CAD0_SPI	I	(I2C pin = "L") Chip Address 0 Pin in 3-wire serial control mode	
17	I2C	I	Control Mode Select Pin "L": 3-wire serial control mode "H": I2C Bus serial control mode or Parallel control mode.	Hi-Z
18	AOUTL1P	O	Lch Positive Analog Output 1 Pin	Hi-Z
19	AOUTL1N	O	Lch Negative Analog Output 1 Pin	Hi-Z
20	VREFL1	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
21	VREFH1	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
22	AOUTR1N	O	Rch Negative Analog Output 1 Pin	Hi-Z
23	AOUTR1P	O	Rch Positive Analog Output 1 Pin	Hi-Z
24	AOUTL2P	O	Lch Positive Analog Output 2 Pin	Hi-Z
25	AOUTL2N	O	Lch Negative Analog Output 2 Pin	Hi-Z
26	VREFL2	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
27	VREFH2	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
28	AOUTR2N	O	Rch Negative Analog Output 2 Pin	Hi-Z
29	AOUTR2P	O	Rch Positive Analog Output 2 Pin	Hi-Z
30	AVSS	-	Analog Ground Pin	—
31	AVDD	-	Analog Power Supply Pin, 3.0V-5.5V	—
32	AOUTL3P	O	Lch Positive Analog Output 3 Pin	Hi-Z
33	AOUTL3N	O	Lch Negative Analog Output 3 Pin	Hi-Z
34	VREFH3	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
35	VREFL3	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
36	AOUTR3N	O	Rch Negative Analog Output 3 Pin	Hi-Z
37	AOUTR3P	O	Rch Positive Analog Output 3Pin	Hi-Z
38	AOUTL4P	O	Lch Positive Analog Output 4 Pin	Hi-Z
39	AOUTL4N	O	Lch Negative Analog Output 4 Pin	Hi-Z
40	VREFH4	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
41	VREFL4	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
42	AOUTR4N	O	Rch Negative Analog Output 4 Pin	Hi-Z
43	AOUTR4P	O	Rch Positive Analog Output 4 Pin	Hi-Z
44	LDOE	I	Internal LDO Enable Pin. "L": Disable, "H": Enable	Hi-Z
45	TVDD	-	Digital Power Supply Pin, 3.0V-3.6V	—
46	DVSS	-	Digital Ground Pin	—
47	VDD18	O	LDO Output Pin (LDOE pin = "H") This pin should be connected to DVSS with 1.0µF.	(Note 4)
		I	1.8V Power Input Pin (LDOE pin = "L")	
48	PDN	I	Power-Down & Reset Pin When this pin is "L", the AK4458 is powered-down and the control registers are reset to default state.	Hi-Z

Note 2. All input pins except internal pull-up/down pins should not be left floating.
Note 3. PCM mode and DSD mode are controlled by registers. Daisy Chain mode is controlled by both registers and pins.
Note 4. This pin outputs DVSS when the LDOE pin = "H" and Hi-z when the LDOE pin = "L".

FUNCTIONAL BLOCK DIAGRAM



⚠2 PCM5102APWR (FRONT CNT : IC591, IC590, IC592, IC593, IC594, IC595, IC596) for DIGITAL NEW PCB



Pin Function

PIN		TYPE	DESCRIPTION
NAME	NO.		
AGND	9	—	Analog ground
AVDD	8	P	Analog power supply, 3.3 V
BCK	13	I	Audio data bit clock input(1)
CAPM	4	O	Charge pump flying capacitor terminal for negative rail
CAPP	2	O	Charge pump flying capacitor terminal for positive rail
CPGND	3	—	Charge pump ground
CPVDD	1	P	Charge pump power supply, 3.3 V
DEMP	10	I	De-emphasis control for 44.1-kHz sampling rate(1): Off (Low) / On (High)
DGND	19	—	Digital ground
DIN	14	I	Audio data input(1)
DVDD	20	P	Digital power supply, 1.8 V or 3.3 V
FLT	11	I	Filter select : Normal latency (Low) / Low latency (High)
FMT	16	I	Audio format selection : I2S (Low) / Left-justified (High)
LDOO	18	P	Internal logic supply rail terminal for decoupling, or external 1.8 V supply terminal
LRCK	15	I	Audio data word clock input(1)
OUTL	6	O	Analog output from DAC left channel
OUTR	7	O	Analog output from DAC right channel
SCK	12	I	System clock input(1)
VNEG	5	O	Negative charge pump rail terminal for decoupling, –3.3 V
XSMT	17	I	Soft mute control(1): Soft mute (Low) / soft un-mute (High)

PCM5100 (DIGITAL : IC321, IC323)

PCM510X (top view)

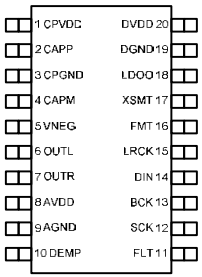


Table 2. TERMINAL FUNCTIONS, PCM510x

TERMINAL NAME	TERMINAL NO.	I/O	DESCRIPTION
CPVDD	1	-	Charge pump power supply, 3.3V
CAPP	2	O	Charge pump flying capacitor terminal for positive rail
CPGND	3	-	Charge pump ground
CAPM	4	O	Charge pump flying capacitor terminal for negative rail
VNEG	5	O	Negative charge pump rail terminal for decoupling, -3.3V
OUTL	6	O	Analog output from DAC left channel
OUTR	7	O	Analog output from DAC right channel
AVDD	8	-	Analog power supply, 3.3V
AGND	9	-	Analog ground
DEMP	10	I	De-emphasis control for 44.1kHz sampling rate(1): Off (Low) / On (High)
FLT	11	I	Filter select : Normal latency (Low) / Low latency (High)
SCK	12	I	System clock input
BCK	13	I	Audio data bit clock input
DIN	14	I	Audio data input
LRCK	15	I	Audio data word clock input
FMT	16	I	Audio format selection : I^2S (Low) / Left justified (High)
XSMT	17	I	Soft mute control : Soft mute (Low) / soft un-mute (High)
LDOO	18	-	Internal logic supply rail terminal for decoupling
DGND	19	-	Digital ground
DVDD	20	-	Digital power supply, 3.3V

PCM5100 Block Diagram

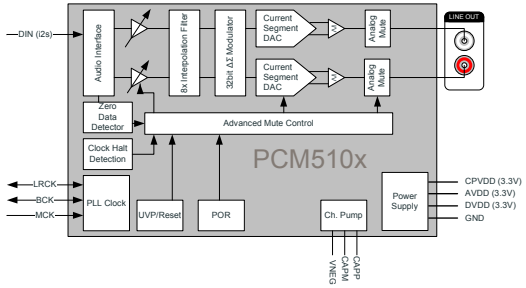
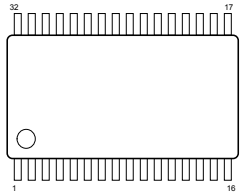


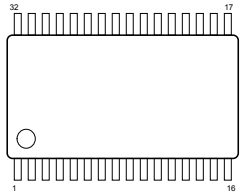
Figure 1. PCM510x Functional Block Diagram

NJU72343 (INPUT : IC471, IC491)



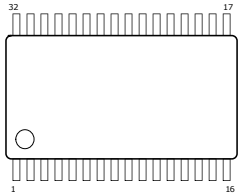
No.	Symbol	Function	No.	Symbol	Function
1	AREF	Analog reference potential	17	DATA	IC control data input
2	ADR	Address selection	18	CLOCK	IC control clock input
3	InA2	Ach input2	19	VDDOUT	Digital power supply output
4	InB2	Bch input2	20	AREF	Analog reference potential
5	InA1	Ach input1	21	OutH	Hch output
6	InB1	Bch input1	22	OutG	Gch output
7	InC	Cch input	23	OutF	Fch output
8	InD	Dch input	24	OutE	Ech output
9	InE	Ech input	25	OutD	Dch output
10	InF	Fch input	26	OutC	Cch output
11	InG1	Gch input1	27	OutB	Bch output
12	InH1	Hch input1	28	OutA	Ach output
13	InG2	Cch input2	29	AREF	Analog reference potential
14	InH2	Dch input2	30	V-	Power supply(-)
15	MUTE	External mute control	31	AREF	Analog reference potential
16	REF	Digital reference potential	32	V+	Power supply(+)

NJU72750 (INPUT : IC473, IC474, IC475, IC478)



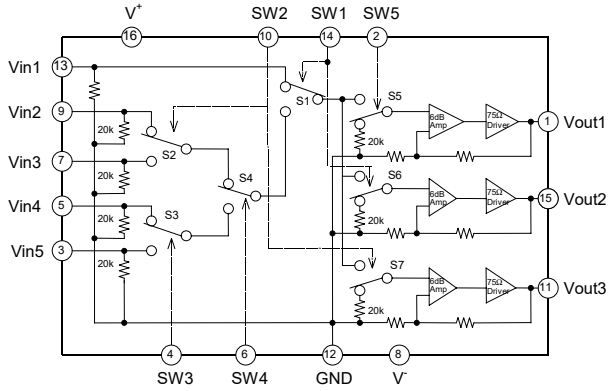
No.	Symbol	Function	No.	Symbol	Function
1	V+	Power supply(+)	17	DATA	IC control data input
2	InA1	Ach input1	18	CLOCK	IC control clock input
3	InB1	Bch input1	19	NC	-
4	InA2	Ach input2	20	NC	-
5	InB2	Bch input2	21	OutB3	Bch output3
6	InA3	Ach input3	22	OutA3	Ach output3
7	InB3	Bch input3	23	REF_B	Bch reference potential
8	InA4	Ach input4	24	OutB2	Bch output2
9	InB4	Bch input4	25	OutA2	Ach output2
10	InA5	Ach input5	26	REF_A	Ach reference potential
11	InB5	Bch input5	27	OutB1	Bch output1
12	InA6	Ach input6	28	OutA1	Ach output1
13	InB6	Bch input6	29	NC	-
14	InA7	Ach input7	30	ADR0	Address selection pin 0
15	InB7	Bch input7	31	ADR1	Address selection pin 1
16	REF	BIAS reference potential	32	V-	Power supply(-)

NJU72751A (INPUT : IC492)

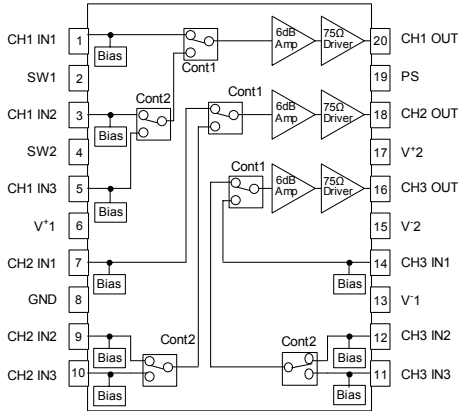


No.	Symbol	Function	No.	Symbol	Function
1	V+	Power supply (+)	17	CLOCK	Clock signal Input terminal
2	ADR0	Chip address setting terminal 0	18	NC	No connect
3	InA1	Ach Input terminal 1	19	OutB4	Bch Output terminal 4
4	InB1	Bch Input terminal 1	20	OutA4	Ach Output terminal 4
5	NC	No connect	21	NC	No connect
6	InA2	Ach Input terminal 2	22	OutB3	Bch Output terminal 3
7	InB2	Bch Input terminal 2	23	OutA3	Ach Output terminal 3
8	NC	No connect	24	REF_B	Bch Reference Voltage terminal
9	NC	No connect	25	REF_A	Ach Reference Voltage terminal
10	InA3	Ach Input terminal 3	26	OutB2	Bch Output terminal 2
11	InB3	Bch Input terminal 3	27	OutA2	Ach Output terminal 2
12	NC	No connect	28	NC	No connect
13	InA4	Ach Input terminal 4	29	OutB1	Bch Output terminal 1
14	InB4	Bch Input terminal 4	30	OutA1	Ach Output terminal 1
15	REF	Digital block reference voltage terminal	31	ADR1	Chip address setting terminal 1
16	DATA	Control data signal Input terminal	32	V-	Power supply (-)

NJM2595MTE1 (VIDEO : IC511)

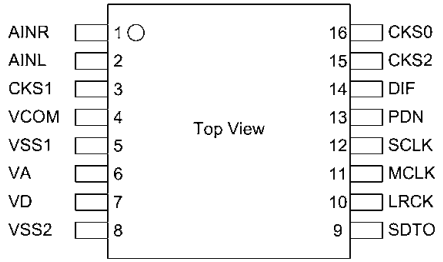


NJM2586AVC3(VIDEO : IC512)



SSOP20-C3

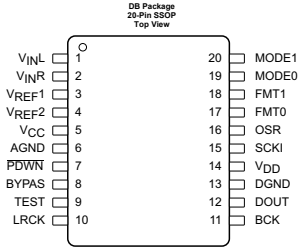
⚠ AK5358BET(DIGITAL_DIR : IC764) for DIGITAL OLD PCB



AK5358BET Pin Function

No.	Pin Name	I/O	Function
1	AINR	I	Rch Analog Input Pin
2	AINL	I	Lch Analog Input Pin
3	CKS1	I	Mode Select 1 Pin
4	VCOM	O	Common Voltage Output Pin, VA/2 Bias voltage of ADC input.
5	VSS1	-	Ground Pin
6	VA	-	Analog Power Supply Pin, 4.5 ~ 5.5V
7	VD	-	Digital Power Supply Pin, 2.7 ~ 5.5V
8	VSS2	-	Ground Pin
9	SDTO	O	Audio Serial Data Output Pin "L" Output at Power-down mode.
10	LRCK	I/O	Output Channel Clock Pin "L" Output in Master Mode at Power-down mode.
11	MCLK	I	Master Clock Input Pin
12	SCLK	I/O	Audio Serial Data Clock Pin "L" Output in Master Mode at Power-down mode.
13	PDN	I	Power Down Mode & Reset Pin "H": Power up, "L": Power down & Reset
14	DIF	I	Audio Interface Format Pin "H": 24bit I^2S Compatible, "L": 24bit MSB justified
15	CKS2	I	Mode Select 2 Pin
16	CKS0	I	Mode Select 0 Pin

⚠ PCM1803A(DIGITAL_DIR : IC764) for DIGITAL NEW PCB

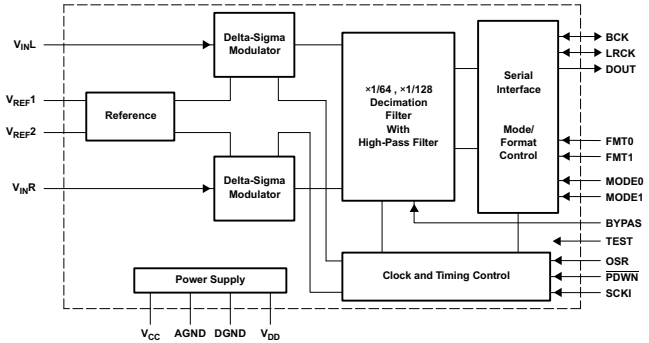


Pin Function

PIN		I/O	DESCRIPTION
NAME	NO.		
AGND	6	–	Analog GND
BCK	11	I/O	Audio data bit clock input/output(1)
BYPAS	8	I	HPF bypass control. LOW: Normal mode (DC reject); HIGH: Bypass mode (through)(2)
DGND	13	–	Digital GND
DOUT	12	O	Audio data digital output
FMT0	17	I	Audio data format select input 0. See Data Format.(2)
FMT1	18	I	Audio data format select input 1. See Data Format.(2)
LRCK	10	I/O	Audio data latch enable input/output(1)
MODE0	19	I	Mode select input 0. See Data Format.(2)
MODE1	20	I	Mode select input 1. See Data Format.(2)
OSR	16	I	Oversampling ratio select input. LOW: × 64 fS, HIGH: × 128 fS(2)
PDWN	7	I	Power-down control, active-low (2)
SCKI	15	I	System clock input: 256 fS, 384 fS, 512 fS, or 768 fS(3)
TEST	9	I	Test, must be connected to DGND(2)
VCC	5	–	Analog power supply, 5-V
VDD	14	–	Digital power supply, 3.3-V
VINL	1	I	Analog input, L-channel
VINR	2	I	Analog input, R-channel
VREF1	3	–	Reference-voltage-1 decoupling capacitor
VREF2	4	–	Reference-voltage-2 decoupling capacitor

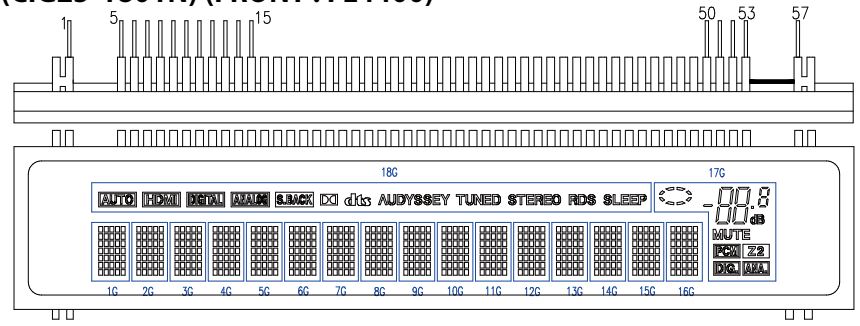
(1) Schmitt-trigger input
(2) Schmitt-trigger input with internal pulldown (50 kΩ, typically), 5-V tolerant
(3) Schmitt-trigger input, 5-V tolerant

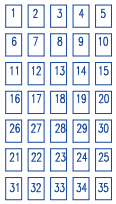
FUNCTIONAL BLOCK DIAGRAM



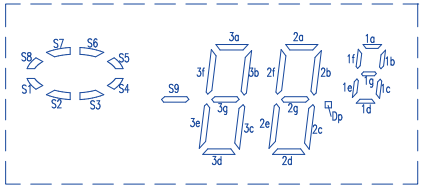
2. FL DISPLAY

FLD (CIG25-1801N) (FRONT : FL4400)





(1G~16G)



17G

PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 - 49	50	51	52	53	54	55	56	57
CONNECTION	F1	NP	NP	NP	LGND	PGND	VH	VDD	OSC	RESET	CS	CP	DA	TSA	TSB	NX	18G	17G	Q17G	Q18G	NP	NP	NP	F2

NOTE

1) F1, F2 ----Filament
2) NP ------No pin
3) NX ------No extend pin
4) LGND ----Logic GND pin
5) PGND ----Power GND pin
6) VH ------High Voltage Supply pin
7) VDD ------Logic Voltage Supply pin
8) CP ----Shift Register Clock
9) DA ----Serial Data Input
10) TSA, B --Test pin
11) OSC ----Pin for self-oscillation
12) 17G, 18G ---Grid
13) Q17G, Q18G ---Driver Output Port.

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	17G(AD3)	18G(AD4)
SEGA1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S9	-
SEGA2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3d	-
SEGA3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2d	-
SEGA4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3e	-
SEGA5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2e	-
SEGA6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3c	-
SEGA7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	2c	-
SEGA8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	3g	-
SEGA9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	2g	-
SEGA10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	3f	-
SEGA11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	2f	-
SEGA12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	3b	-
SEGA13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	2b	-
SEGA14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	3a	-
SEGA15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	2a	-
SEGA16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	Dp	-
SEGA17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	dB	-
SEGA18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	1d	-
SEGA19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	1e	-
SEGA20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	1c	-
SEGA21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	1g	-
SEGA22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	1f	-
SEGA23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	1b	-
SEGA24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	1a	AUTO
SEGA25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S1	HDMI
SEGA26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	S2	DIGITAL
SEGA27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	S3	ANALOG
SEGA28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	S4	S.BACK
SEGA29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	S5	DOLBY
SEGA30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	S6	dts
SEGA31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	S7	AUDYSSEY
SEGA32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	S8	TUNED
SEGA33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	MUTE	STEREO
SEGA34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	PCM	RDS
SEGA35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	Z2	SLEEP
AD1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIG.	-
AD2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANA.	-

FORMAT SHARP

FORMAT: SHARP/DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED/REMOTE ID : 1
SYSTEM ADDRESS (C1 ～ C5) : 0 1 0 0 0 , EXTENSION BIT(C12,C13) : 1 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0230**00**	0 0 0 0 0 0		RCSHP0230**16**	0 0 0 0 1 0	FR LEVEL DOWN
RCSHP0230**01**	1 0 0 0 0 0	POWER	RCSHP0230**17**	1 0 0 0 1 0	
RCSHP0230**02**	0 1 0 0 0 0	FL LEVEL UP	RCSHP0230**18**	0 1 0 0 1 0	
RCSHP0230**03**	1 1 0 0 0 0	PHONO	RCSHP0230**19**	1 1 0 0 1 0	
RCSHP0230**04**	0 0 1 0 0 0	CD	RCSHP0230**20**	0 0 1 0 1 0	
RCSHP0230**05**	1 0 1 0 0 0	TUNER	RCSHP0230**21**	1 0 1 0 1 0	
RCSHP0230**06**	0 1 1 0 0 0		RCSHP0230**22**	0 1 1 0 1 0	SR LEVEL UP
RCSHP0230**07**	1 1 1 0 0 0	FL LEVEL DOWN	RCSHP0230**23**	1 1 1 0 1 0	SR LEVEL DOWN
RCSHP0230**08**	0 0 0 1 0 0	CBL/SAT	RCSHP0230**24**	0 0 0 1 1 0	VIDEO SELECT
RCSHP0230**09**	1 0 0 1 0 0	TV AUDIO	RCSHP0230**25**	1 0 0 1 1 0	
RCSHP0230**10**	0 1 0 1 0 0	Blu-ray	RCSHP0230**26**	0 1 0 1 1 0	
RCSHP0230**11**	1 1 0 1 0 0	FR LEVEL UP	RCSHP0230**27**	1 1 0 1 1 0	
RCSHP0230**12**	0 0 1 1 0 0	AUX	RCSHP0230**28**	0 0 1 1 1 0	INPUT MODE ANALOG
RCSHP0230**13**	1 0 1 1 0 0	GAME	RCSHP0230**29**	1 0 1 1 1 0	CURSOR RIGHT
RCSHP0230**14**	0 1 1 1 0 0	MEDIA PLAYER	RCSHP0230**30**	0 1 1 1 1 0	STATUS
RCSHP0230**15**	1 1 1 1 0 0		RCSHP0230**31**	1 1 1 1 1 0	INFO

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0230**32**	0 0 0 0 0 1	ENTER	RCSHP0230**48**	0 0 0 0 1 1	MUTING
RCSHP0230**33**	1 0 0 0 0 1	POWER ON	RCSHP0230**49**	1 0 0 0 1 1	MASTER VOLUME UP
RCSHP0230**34**	0 1 0 0 0 1	POWER OFF	RCSHP0230**50**	0 1 0 0 1 1	MASTER VOLUME DOWN
RCSHP0230**35**	1 1 0 0 0 1	DVD	RCSHP0230**51**	1 1 0 0 1 1	SL LEVEL UP
RCSHP0230**36**	0 0 1 0 0 1	STANDARD (DOLBY/DTS SURR.)	RCSHP0230**52**	0 0 1 0 1 1	SL LEVEL DOWN
RCSHP0230**37**	1 0 1 0 0 1	SW LEVEL DOWN	RCSHP0230**53**	1 0 1 0 1 1	CENTER LEVEL UP
RCSHP0230**38**	0 1 1 0 0 1	DSP SIMULATION	RCSHP0230**54**	0 1 1 0 1 1	CENTER LEVEL DOWN
RCSHP0230**39**	1 1 1 0 0 1	SB/SBL LEVEL UP	RCSHP0230**55**	1 1 1 0 1 1	SBR LEVEL UP
RCSHP0230**40**	0 0 0 1 0 1		RCSHP0230**56**	0 0 0 1 1 1	SBR LEVEL DOWN
RCSHP0230**41**	1 0 0 1 0 1		RCSHP0230**57**	1 0 0 1 1 1	TONE CONTROL OFF
RCSHP0230**42**	0 1 0 1 0 1		RCSHP0230**58**	0 1 0 1 1 1	TONE CONTROL ON
RCSHP0230**43**	1 1 0 1 0 1	SB/SBL LEVEL DOWN	RCSHP0230**59**	1 1 0 1 1 1	
RCSHP0230**44**	0 0 1 1 0 1	SW LEVEL UP	RCSHP0230**60**	0 0 1 1 1 1	
RCSHP0230**45**	1 0 1 1 0 1	FRONT SPEAKER	RCSHP0230**61**	1 0 1 1 1 1	
RCSHP0230**46**	0 1 1 1 0 1	SP-A ,FRONT	RCSHP0230**62**	0 1 1 1 1 1	
RCSHP0230**47**	1 1 1 1 0 1	SP-B ,FRONT	RCSHP0230**63**	1 1 1 1 1 1	

FORMAT: SHARP/DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED/REMOTE ID : 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 1 0 , EXTENSION BIT (C12,C13) : 0 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C2000**0**	0 0 0 0 0 0	ALL BASS DOWN	RCSHP0C2001**6**	0 0 0 0 1 0	ZONE2 CD
RCSHP0C2000**1**	1 0 0 0 0 0		RCSHP0C2001**7**	1 0 0 0 1 0	ZONE2 TUNER
RCSHP0C2000**2**	0 1 0 0 0 0	SURROUND BACK	RCSHP0C2001**8**	0 1 0 0 1 0	ZONE2 Blu-ray
RCSHP0C2000**3**	1 1 0 0 0 0	MASTER VOL. PRESET1 (0dB)	RCSHP0C2001**9**	1 1 0 0 1 0	ZONE2 AUX
RCSHP0C2000**4**	0 0 1 0 0 0		RCSHP0C2002**0**	0 0 1 0 1 0	ZONE2 GAME
RCSHP0C2000**5**	1 0 1 0 0 0	MASTER VOL. PRESET2 (-20dB)	RCSHP0C2002**1**	1 0 1 0 1 0	
RCSHP0C2000**6**	0 1 1 0 0 0	MASTER VOL. PRESET3 (-40dB)	RCSHP0C2002**2**	0 1 1 0 1 0	ZONE2 PRESET UP
RCSHP0C2000**7**	1 1 1 0 0 0	ZONE2 VOL. PRESET1 (0dB)	RCSHP0C2002**3**	1 1 1 0 1 0	ZONE2 PRESET DOWN
RCSHP0C2000**8**	0 0 0 1 0 0	ZONE2 VOL. PRESET2 (-20dB)	RCSHP0C2002**4**	0 0 0 1 1 0	
RCSHP0C2000**9**	1 0 0 1 0 0	ZONE2 VOL. PRESET3 (-40dB)	RCSHP0C2002**5**	1 0 0 1 1 0	ZONE2 MEDIA PLAYER
RCSHP0C2001**0**	0 1 0 1 0 0	ZONE2 CBL/SAT	RCSHP0C2002**6**	0 1 0 1 1 0	
RCSHP0C2001**1**	1 1 0 1 0 0		RCSHP0C2002**7**	1 1 0 1 1 0	ZONE2 TV AUDIO
RCSHP0C2001**2**	0 0 1 1 0 0	ZONE3 VOL. PRESET1 (0dB)	RCSHP0C2002**8**	0 0 1 1 1 0	
RCSHP0C2001**3**	1 0 1 1 0 0	ZONE2 VOLUME UP	RCSHP0C2002**9**	1 0 1 1 1 0	STEREO
RCSHP0C2001**4**	0 1 1 1 0 0	ZONE2 VOLUME DOWN	RCSHP0C2003**0**	0 1 1 1 1 0	DIRECT
RCSHP0C2001**5**	1 1 1 1 0 0	ZONE2 PHONO	RCSHP0C2003**1**	1 1 1 1 1 0	ZONE3 VOL. PRESET2 (0dB)

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C2003**2**	0 0 0 0 0 1	SETUP MENU	RCSHP0C2004**8**	0 0 0 0 1 1	
RCSHP0C2003**3**	1 0 0 0 0 1		RCSHP0C2004**9**	1 0 0 0 1 1	
RCSHP0C2003**4**	0 1 0 0 0 1	ZONE3 VOL. PRESET2 (0dB)	RCSHP0C2005**0**	0 1 0 0 1 1	
RCSHP0C2003**5**	1 1 0 0 0 1	CURSOR UP	RCSHP0C2005**1**	1 1 0 0 1 1	
RCSHP0C2003**6**	0 0 1 0 0 1	CURSOR DOWN	RCSHP0C2005**2**	0 0 1 0 1 1	
RCSHP0C2003**7**	1 0 1 0 0 1		RCSHP0C2005**3**	1 0 1 0 1 1	
RCSHP0C2003**8**	0 1 1 0 0 1		RCSHP0C2005**4**	0 1 1 0 1 1	INPUT MODE
RCSHP0C2003**9**	1 1 1 0 0 1		RCSHP0C2005**5**	1 1 1 0 1 1	ALL TREBLE UP
RCSHP0C2004**0**	0 0 0 1 0 1	MULTI CH STEREO	RCSHP0C2005**6**	0 0 0 1 1 1	ALL TREBLE DOWN
RCSHP0C2004**1**	1 0 0 1 0 1		RCSHP0C2005**7**	1 0 0 1 1 1	
RCSHP0C2004**2**	0 1 0 1 0 1		RCSHP0C2005**8**	0 1 0 1 1 1	
RCSHP0C2004**3**	1 1 0 1 0 1		RCSHP0C2005**9**	1 1 0 1 1 1	
RCSHP0C2004**4**	0 0 1 1 0 1		RCSHP0C2006**0**	0 0 1 1 1 1	
RCSHP0C2004**5**	1 0 1 1 0 1		RCSHP0C2006**1**	1 0 1 1 1 1	
RCSHP0C2004**6**	0 1 1 1 0 1		RCSHP0C2006**2**	0 1 1 1 1 1	ZONE2 DVD
RCSHP0C2004**7**	1 1 1 1 0 1	CH LEVEL	RCSHP0C2006**3**	1 1 1 1 1 1	ALL BASS UP

FORMAT: SHARP/DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED/REMOTE ID : 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 1 0 , EXTENSION BIT (C12,C13) : 1 0

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C1003**2**	0 0 0 0 0 1		RCSHP0C1004**8**	0 0 0 0 1 1	
RCSHP0C1003**3**	1 0 0 0 0 1		RCSHP0C1004**9**	1 0 0 0 1 1	
RCSHP0C1003**4**	0 1 0 0 0 1		RCSHP0C1005**0**	0 1 0 0 1 1	
RCSHP0C1003**5**	1 1 0 0 0 1		RCSHP0C1005**1**	1 1 0 0 1 1	
RCSHP0C1003**6**	0 0 1 0 0 1		RCSHP0C1005**2**	0 0 1 0 1 1	
RCSHP0C1003**7**	1 0 1 0 0 1		RCSHP0C1005**3**	1 0 1 0 1 1	
RCSHP0C1003**8**	0 1 1 0 0 1		RCSHP0C1005**4**	0 1 1 0 1 1	
RCSHP0C1003**9**	1 1 1 0 0 1		RCSHP0C1005**5**	1 1 1 0 1 1	
RCSHP0C1004**0**	0 0 0 1 0 1		RCSHP0C1005**6**	0 0 0 1 1 1	
RCSHP0C1004**1**	1 0 0 1 0 1		RCSHP0C1005**7**	1 0 0 1 1 1	
RCSHP0C1004**2**	0 1 0 1 0 1		RCSHP0C1005**8**	0 1 0 1 1 1	
RCSHP0C1004**3**	1 1 0 1 0 1		RCSHP0C1005**9**	1 1 0 1 1 1	
RCSHP0C1004**4**	0 0 1 1 0 1		RCSHP0C1006**0**	0 0 1 1 1 1	
RCSHP0C1004**5**	1 0 1 1 0 1		RCSHP0C1006**1**	1 0 1 1 1 1	
RCSHP0C1004**6**	0 1 1 1 0 1		RCSHP0C1006**2**	0 1 1 1 1 1	
RCSHP0C1004**7**	1 1 1 1 0 1		RCSHP0C1006**3**	1 1 1 1 1 1	CURSOR LEFT

FORMAT: SHARP/DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED/REMOTE ID : 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 1 0 , EXTENSION BIT (C12,C13) : 1 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C3000**0**	0 0 0 0 0 0		RCSHP0C3001**6**	0 0 0 0 1 0	
RCSHP0C3000**1**	1 0 0 0 0 0	1 *AVR(NA/CHI) only	RCSHP0C3001**7**	1 0 0 0 1 0	
RCSHP0C3000**2**	0 1 0 0 0 0	2 *AVR(NA/CHI) only	RCSHP0C3001**8**	0 1 0 0 1 0	DIRECT SEARCH *AVR only
RCSHP0C3000**3**	1 1 0 0 0 0	3 *AVR(NA/CHI) only	RCSHP0C3001**9**	1 1 0 0 1 0	
RCSHP0C3000**4**	0 0 1 0 0 0	4 *AVR(NA/CHI) only	RCSHP0C3002**0**	0 0 1 0 1 0	PTY *EU only
RCSHP0C3000**5**	1 0 1 0 0 0	5 *AVR(NA/CHI) only	RCSHP0C3002**1**	1 0 1 0 1 0	TUNER PRESET DOWN *AVR only
RCSHP0C3000**6**	0 1 1 0 0 0	6 *AVR(NA/CHI) only	RCSHP0C3002**2**	0 1 1 0 1 0	TUNER PRESET UP *AVR only
RCSHP0C3000**7**	1 1 1 0 0 0	7 *AVR(NA/CHI) only	RCSHP0C3002**3**	1 1 1 0 1 0	TUNER BAND *AVR only
RCSHP0C3000**8**	0 0 0 1 0 0	8 *AVR(NA/CHI) only	RCSHP0C3002**4**	0 0 0 1 1 0	TUNER TUNING MODE *AVR only
RCSHP0C3000**9**	1 0 0 1 0 0	9 *AVR(NA/CHI) only	RCSHP0C3002**5**	1 0 0 1 1 0	TUNER TUNING UP *AVR only
RCSHP0C3001**0**	0 1 0 1 0 0	0 *AVR(NA/CHI) only	RCSHP0C3002**6**	0 1 0 1 1 0	TUNER TUNING DOWN *AVR only
RCSHP0C3001**1**	1 1 0 1 0 0		RCSHP0C3002**7**	1 1 0 1 1 0	
RCSHP0C3001**2**	0 0 1 1 0 0	TUNER MEMORY *AVR(NA/CHI) only	RCSHP0C3002**8**	0 0 1 1 1 0	
RCSHP0C3001**3**	1 0 1 1 0 0		RCSHP0C3002**9**	1 0 1 1 1 0	
RCSHP0C3001**4**	0 1 1 1 0 0	RT *EU only	RCSHP0C3003**0**	0 1 1 1 1 0	
RCSHP0C3001**5**	1 1 1 1 0 0		RCSHP0C3003**1**	1 1 1 1 1 0	DIMMER

FORMAT: SHARP/DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED/REMOTE ID : 1
SYSTEM ADDRESS (C1 ～ C5) : 0 1 0 0 0 , EXTENSION BIT (C12,C13) : 1 0

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0210**00**	0 0 0 0 0 0		RCSHP0210**16**	0 0 0 0 1 0	
RCSHP0210**01**	1 0 0 0 0 0		RCSHP0210**17**	1 0 0 0 1 0	
RCSHP0210**02**	0 1 0 0 0 0		RCSHP0210**18**	0 1 0 0 1 0	ZONE3 TV AUDIO
RCSHP0210**03**	1 1 0 0 0 0		RCSHP0210**19**	1 1 0 0 1 0	ZONE3 CBL/SAT
RCSHP0210**04**	0 0 1 0 0 0		RCSHP0210**20**	0 0 1 0 1 0	ZONE3 GAME
RCSHP0210**05**	1 0 1 0 0 0		RCSHP0210**21**	1 0 1 0 1 0	ZONE3 MEDIAPLAYER
RCSHP0210**06**	0 1 1 0 0 0		RCSHP0210**22**	0 1 1 0 1 0	
RCSHP0210**07**	1 1 1 0 0 0		RCSHP0210**23**	1 1 1 0 1 0	ZONE3 AUX
RCSHP0210**08**	0 0 0 1 0 0	ZONE3 TUNER	RCSHP0210**24**	0 0 0 1 1 0	
RCSHP0210**09**	1 0 0 1 0 0	ZONE3 PHONO	RCSHP0210**25**	1 0 0 1 1 0	
RCSHP0210**10**	0 1 0 1 0 0	ZONE3 CD	RCSHP0210**26**	0 1 0 1 1 0	
RCSHP0210**11**	1 1 0 1 0 0		RCSHP0210**27**	1 1 0 1 1 0	
RCSHP0210**12**	0 0 1 1 0 0		RCSHP0210**28**	0 0 1 1 1 0	
RCSHP0210**13**	1 0 1 1 0 0		RCSHP0210**29**	1 0 1 1 1 0	ZONE2 ON/OFF
RCSHP0210**14**	0 1 1 1 0 0	ZONE3 DVD	RCSHP0210**30**	0 1 1 1 1 0	
RCSHP0210**15**	1 1 1 1 0 0	ZONE3 Blu-ray	RCSHP0210**31**	1 1 1 1 1 0	

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0210**32**	0 0 0 0 0 1		RCSHP0210**48**	0 0 0 0 1 1	
RCSHP0210**33**	1 0 0 0 0 1		RCSHP0210**49**	1 0 0 0 1 1	
RCSHP0210**34**	0 1 0 0 0 1		RCSHP0210**50**	0 1 0 0 1 1	
RCSHP0210**35**	1 1 0 0 0 1		RCSHP0210**51**	1 1 0 0 1 1	
RCSHP0210**36**	0 0 1 0 0 1		RCSHP0210**52**	0 0 1 0 1 1	
RCSHP0210**37**	1 0 1 0 0 1	ZONE3 VOLUME DOWN	RCSHP0210**53**	1 0 1 0 1 1	
RCSHP0210**38**	0 1 1 0 0 1	ZONE3 VOLUME UP	RCSHP0210**54**	0 1 1 0 1 1	
RCSHP0210**39**	1 1 1 0 0 1		RCSHP0210**55**	1 1 1 0 1 1	
RCSHP0210**40**	0 0 0 1 0 1		RCSHP0210**56**	0 0 0 1 1 1	
RCSHP0210**41**	1 0 0 1 0 1		RCSHP0210**57**	1 0 0 1 1 1	MAIN ZONE ON
RCSHP0210**42**	0 1 0 1 0 1	PURE DIRECT	RCSHP0210**58**	0 1 0 1 1 1	MAIN ZONE OFF
RCSHP0210**43**	1 1 0 1 0 1		RCSHP0210**59**	1 1 0 1 1 1	ZONE2 ON
RCSHP0210**44**	0 0 1 1 0 1		RCSHP0210**60**	0 0 1 1 1 1	ZONE2 OFF
RCSHP0210**45**	1 0 1 1 0 1		RCSHP0210**61**	1 0 1 1 1 1	ZONE3 ON
RCSHP0210**46**	0 1 1 1 0 1		RCSHP0210**62**	0 1 1 1 1 1	ZONE3 OFF
RCSHP0210**47**	1 1 1 1 0 1		RCSHP0210**63**	1 1 1 1 1 1	

FORMAT: SHARP/DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED/REMOTE ID : 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 0 0 , EXTENSION BIT (C12,C13) : 0 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0420**00**	0 0 0 0 0 0		RCSHP0420**16**	0 0 0 0 1 0	DOLBY PL II MUSIC
RCSHP0420**01**	1 0 0 0 0 0		RCSHP0420**17**	1 0 0 0 1 0	DOLBY PL
RCSHP0420**02**	0 1 0 0 0 0		RCSHP0420**18**	0 1 0 0 1 0	
RCSHP0420**03**	1 1 0 0 0 0	ROCK ARENA	RCSHP0420**19**	1 1 0 0 1 0	
RCSHP0420**04**	0 0 1 0 0 0	JAZZ CLUB	RCSHP0420**20**	0 0 1 0 1 0	
RCSHP0420**05**	1 0 1 0 0 0		RCSHP0420**21**	1 0 1 0 1 0	
RCSHP0420**06**	0 1 1 0 0 0	MONO MOVIE	RCSHP0420**22**	0 1 1 0 1 0	
RCSHP0420**07**	1 1 1 0 0 0	MATRIX	RCSHP0420**23**	1 1 1 0 1 0	
RCSHP0420**08**	0 0 0 1 0 0	VIDEO GAME	RCSHP0420**24**	0 0 0 1 1 0	
RCSHP0420**09**	1 0 0 1 0 0	VIRTUAL	RCSHP0420**25**	1 0 0 1 1 0	
RCSHP0420**10**	0 1 0 1 0 0		RCSHP0420**26**	0 1 0 1 1 0	
RCSHP0420**11**	1 1 0 1 0 0		RCSHP0420**27**	1 1 0 1 1 0	
RCSHP0420**12**	0 0 1 1 0 0		RCSHP0420**28**	0 0 1 1 1 0	
RCSHP0420**13**	1 0 1 1 0 0		RCSHP0420**29**	1 0 1 1 1 0	MultEQ XT32
RCSHP0420**14**	0 1 1 1 0 0		RCSHP0420**30**	0 1 1 1 1 0	
RCSHP0420**15**	1 1 1 1 0 0	DOLBY PL II CINEMA	RCSHP0420**31**	1 1 1 1 1 0	

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0420**32**	0 0 0 0 0 1		RCSHP0420**48**	0 0 0 0 1 1	
RCSHP0420**33**	1 0 0 0 0 1		RCSHP0420**49**	1 0 0 0 1 1	
RCSHP0420**34**	0 1 0 0 0 1		RCSHP0420**50**	0 1 0 0 1 1	
RCSHP0420**35**	1 1 0 0 0 1		RCSHP0420**51**	1 1 0 0 1 1	INPUT MDOE AUTO
RCSHP0420**36**	0 0 1 0 0 1		RCSHP0420**52**	0 0 1 0 1 1	
RCSHP0420**37**	1 0 1 0 0 1		RCSHP0420**53**	1 0 1 0 1 1	
RCSHP0420**38**	0 1 1 0 0 1		RCSHP0420**54**	0 1 1 0 1 1	
RCSHP0420**39**	1 1 1 0 0 1		RCSHP0420**55**	1 1 1 0 1 1	
RCSHP0420**40**	0 0 0 1 0 1		RCSHP0420**56**	0 0 0 1 1 1	
RCSHP0420**41**	1 0 0 1 0 1		RCSHP0420**57**	1 0 0 1 1 1	
RCSHP0420**42**	0 1 0 1 0 1		RCSHP0420**58**	0 1 0 1 1 1	
RCSHP0420**43**	1 1 0 1 0 1		RCSHP0420**59**	1 1 0 1 1 1	
RCSHP0420**44**	0 0 1 1 0 1		RCSHP0420**60**	0 0 1 1 1 1	
RCSHP0420**45**	1 0 1 1 0 1		RCSHP0420**61**	1 0 1 1 1 1	
RCSHP0420**46**	0 1 1 1 0 1		RCSHP0420**62**	0 1 1 1 1 1	
RCSHP0420**47**	1 1 1 1 0 1		RCSHP0420**63**	1 1 1 1 1 1	

FORMAT KASEIKYO

DATA CONSTRUCTION 48bits

DENON CODE																Parity				GENRE1 (*1)			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	*	*	*	*
GENRE2 (*2)				Data										ID (*3)		Parity (*5)							
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

(*5) Parity :
Delimit of each to 8 bits, and add the 3rd byte and the 4th byte and the 5th byte with modulo 2 (exclusive-OR).
3rd byte (17 - 24 bit)
4th byte (25 - 32 bit)
5th byte (33 - 40 bit)

REMOTE ID SETTING: (default ID 1)

ID No.	ZONE/DEVICE	GENRE1 (*1)				GENRE2 (*2)				ID (*3)		
		21	22	23	24	25	26	27	28	39	40	
1	MAIN ZONE	0	0	1	0	1	0	0	0	0	0	SHARP&K4-1
	ZONE2	0	0	1	0	1	1	0	0	0	0	SHARP&K4-3
	TUNER	0	0	1	0	1	0	0	0	0	0	SHARP&K4-1
	HEOS MUSIC	0	0	1	0	1	1	1	0	0	0	K4-7
2	MAIN ZONE	0	0	1	0	0	1	0	0	1	0	K4-2
	ZONE2	0	0	1	0	0	0	1	0	1	0	K4-4
	TUNER	0	0	1	0	0	1	0	0	1	0	K4-2
	HEOS MUSIC	0	0	1	0	0	0	0	1	1	0	K4-8
3	MAIN ZONE	0	0	1	0	0	1	0	0	0	1	K4-2
	ZONE2	0	0	1	0	0	0	1	0	0	1	K4-4
	TUNER	0	0	1	0	0	1	0	0	0	1	K4-2
	HEOS MUSIC	0	0	1	0	0	0	0	1	0	1	K4-8
4	MAIN ZONE	0	0	1	0	0	1	0	0	1	1	K4-2
	ZONE2	0	0	1	0	0	0	1	0	1	1	K4-4
	TUNER	0	0	1	0	0	1	0	0	1	1	K4-2
	HEOS MUSIC	0	0	1	0	0	0	0	1	1	1	K4-8

MAIN ZONE

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				1			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				2			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0

No.	Data										ID		parity								Key Name
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
RCKSK0410001	1	0	0	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ALL POWER ON/OFF
RCKSK0410002	0	1	0	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ALL POWER ON
RCKSK0410003	1	1	0	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ALL POWER OFF
RCKSK0410005	1	0	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MAIN ZONE ON/OFF
RCKSK0410006	0	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MAIN ZONE ON
RCKSK0410007	1	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MAIN ZONE OFF
RCKSK0410012	0	0	1	1	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	TRIGGER-1 ON
RCKSK0410013	1	0	1	1	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	TRIGGER-1 OFF
RCKSK0410014	0	1	1	1	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	TRIGGER-2 ON
RCKSK0410015	1	1	1	1	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	TRIGGER-2 OFF
RCKSK0410016	0	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY1
RCKSK0410017	1	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY2
RCKSK0410018	0	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY3
RCKSK0410019	1	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY4
RCKSK0410020	0	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY5
RCKSK0410021	1	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY6
RCKSK0410022	0	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY7
RCKSK0410023	1	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY8
RCKSK0410024	0	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY9
RCKSK0410025	1	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY0
RCKSK0410027	1	1	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR UP
RCKSK0410028	0	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR DOWN
RCKSK0410029	1	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR LEFT
RCKSK0410030	0	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR RIGHT
RCKSK0410031	1	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ENTER
RCKSK0410034	0	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	RETURN/BACK
RCKSK0410035	1	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	SETUP MENU
RCKSK0410036	0	0	1	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MEMORY ∗AVR only
RCKSK0410042	0	1	0	1	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	UPGRADE ID ON
RCKSK0410045	1	0	1	1	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	Bilingual Mode (toggle) (JP only)
RCKSK0410112	0	0	0	0	1	1	1	0	0	0	*	*	*	*	*	*	*	*	*	*	VIDEO SELECT
RCKSK0410292	0	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 1
RCKSK0410293	1	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 2
RCKSK0410294	0	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 3
RCKSK0410295	1	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 4
RCKSK0410296	0	0	0	1	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 5
RCKSK0410304	0	0	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	STEREO
RCKSK0410305	1	0	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	DIRECT/STEREO
RCKSK0410306	0	1	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	DIRECT
RCKSK0410307	1	1	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	PURE DIRECT
RCKSK0410308	0	0	1	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	STANDARD
RCKSK0410309	1	0	1	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	DIRECT
RCKSK0410320	0	0	0	0	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	DTS SURROUND
RCKSK0410324	0	0	1	0	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	AUTO SOUND
RCKSK0410329	1	0	0	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MOVIE SURROUND
RCKSK0410330	0	1	0	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MUSIC SURROUND
RCKSK0410331	1	1	0	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	GAME SURROUND
RCKSK0410332	0	0	1	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	SOUND MODE toggle (Reverse)
RCKSK0410336	0	0	0	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	DSP SIMULATION
RCKSK0410337	1	0	0	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MULTI CH STEREO
RCKSK0410340	0	0	1	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ROCK ARENA
RCKSK0410341	1	0	1	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	JAZZ CLUB
RCKSK0410343	1	1	1	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MONO MOVIE
RCKSK0410344	0	0	0	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MATRIX
RCKSK0410345	1	0	0	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	VIDEO GAME
RCKSK0410346	0	1	0	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	VIRTUAL
RCKSK0410348	0	0	1	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Dolby Atmos ON/OFF
RCKSK0410349	1	0	1	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	SOUND MODE toggle (Normal)
RCKSK0410352	0	0	0	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE SELECT
RCKSK0410353	1	0	0	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE:ANALOG
RCKSK0410357	1	0	1	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE HDMI
RCKSK0410358	0	1	1	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE:AUTO
RCKSK0410359	1	1	1	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE DIGITAL
RCKSK0410368	0	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Volume Up
RCKSK0410369	1	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Volume Down
RCKSK0410370	0	1	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Mute
RCKSK0410372	0	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	M.VR PRESET1 (0dB)
RCKSK0410373	1	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	M.VR PRESET2 (-20dB)
RCKSK0410374	0	1	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	M.VR PRESET3 (-40dB)
RCKSK0410378	0	1	0	1	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	CHANNEL LEVEL
RCKSK0410384	0	0	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FL LEVEL UP
RCKSK0410385	1	0	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FL LEVEL DOWN
RCKSK0410386	0	1	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FR LEVEL UP
RCKSK0410387	1	1	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FR LEVEL DOWN
RCKSK0410388	0	0	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	C LEVEL UP
RCKSK0410389	1	0	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	C LEVEL DOWN
RCKSK0410390	0	1	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SW LEVEL UP

RCKSK0410391	1	1	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SW LEVEL DOWN
RCKSK0410392	0	0	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SL LEVEL UP
RCKSK0410393	1	0	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SL LEVEL DOWN
RCKSK0410394	0	1	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SR LEVEL UP
RCKSK0410395	1	1	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SR LEVEL DOWN
RCKSK0410396	0	0	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBL LEVEL UP
RCKSK0410397	1	0	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBL LEVEL DOWN
RCKSK0410398	0	1	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBR LEVEL UP
RCKSK0410399	1	1	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBR LEVEL DOWN
RCKSK0410400	0	0	0	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL TREBLE UP
RCKSK0410401	1	0	0	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL TREBLE DOWN
RCKSK0410403	1	1	0	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL BASS UP
RCKSK0410404	0	0	1	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL BASS DOWN
RCKSK0410406	0	1	1	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TONE CONTROL ON/OFF
RCKSK0410407	1	1	1	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TONE CONTROL OFF
RCKSK0410408	0	0	0	1	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TONE CONTROL ON
RCKSK0410410	0	1	0	1	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SW2 LEVEL UP
RCKSK0410411	1	1	0	1	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SW2 LEVEL DOWN
RCKSK0410417	1	0	0	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFL LEVEL UP
RCKSK0410418	0	1	0	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFL LEVEL DOWN
RCKSK0410419	1	1	0	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFR LEVEL UP
RCKSK0410420	0	0	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFR LEVEL DOWN
RCKSK0410421	1	0	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TML LEVEL UP
RCKSK0410422	0	1	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TML LEVEL DOWN
RCKSK0410423	1	1	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TMR LEVEL UP
RCKSK0410424	0	0	0	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TMR LEVEL DOWN
RCKSK0410425	1	0	0	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TRL LEVEL UP
RCKSK0410426	0	1	0	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TRL LEVEL DOWN
RCKSK0410427	1	1	0	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TRR LEVEL UP
RCKSK0410428	0	0	1	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TRR LEVEL DOWN
RCKSK0410429	1	0	1	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	RHL LEVEL UP
RCKSK0410430	0	1	1	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	RHL LEVEL DOWN
RCKSK0410431	1	1	1	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	RHR LEVEL UP
RCKSK0410432	0	0	0	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	RHR LEVEL DOWN
RCKSK0410433	1	0	0	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDL LEVEL UP
RCKSK0410434	0	1	0	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDL LEVEL DOWN
RCKSK0410435	1	1	0	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDR LEVEL UP
RCKSK0410436	0	0	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDR LEVEL DOWN
RCKSK0410437	1	0	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDL LEVEL UP
RCKSK0410438	0	1	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDL LEVEL DOWN
RCKSK0410439	1	1	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDR LEVEL UP
RCKSK0410440	0	0	0	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDR LEVEL DOWN
RCKSK0410441	1	0	0	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	BDL LEVEL UP
RCKSK0410442	0	1	0	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	BDL LEVEL DOWN
RCKSK0410443	1	1	0	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	BDR LEVEL UP
RCKSK0410444	0	0	1	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	BDR LEVEL DOWN
RCKSK0410445	1	0	1	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	Audyssey LFC ON
RCKSK0410446	0	1	1	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	Audyssey LFC OFF
RCKSK0410456	0	0	0	1	0	0	1	1	1	0	*	*	*	*	*	*	*	*	*	*	Audyssey LFC ON/OFF
RCKSK0410522	0	1	0	1	0	0	0	0	0	1	*	*	*	*	*	*	*	*	*	*	FRONT SPEAKER
RCKSK0410542	0	1	1	1	1	0	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME OFF
RCKSK0410545	1	0	0	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME SELECT
RCKSK0410547	1	1	0	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ SELECT
RCKSK0410548	0	0	1	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO RESTORER SELECT
RCKSK0410549	1	0	1	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ/VOLUME SELECT
RCKSK0410556	0	0	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (OFF)
RCKSK0410557	1	0	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (High)
RCKSK0410558	0	1	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (Medium)
RCKSK0410559	1	1	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (Low)
RCKSK0410605	1	0	1	1	1	0	1	0	0	1	*	*	*	*	*	*	*	*	*	*	FRONTSP A ON/OFF
RCKSK0410606	0	1	1	1	1	0	1	0	0	1	*	*	*	*	*	*	*	*	*	*	FRONTSP B ON/OFF
RCKSK0410620	0	0	1	1	0	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO DELAY MODE
RCKSK0410621	1	0	1	1	0	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO DELAY UP
RCKSK0410622	0	1	1	1	0	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO DELAY DOWN
RCKSK0410624	0	0	0	0	1	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	INFO
RCKSK0410640	0	0	0	0	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FLD STATUS
RCKSK0410649	1	0	0	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHL LEVEL UP
RCKSK0410650	0	1	0	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHL LEVEL DOWN
RCKSK0410651	1	1	0	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHR LEVEL UP
RCKSK0410652	0	0	1	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHR LEVEL DOWN
RCKSK0410656	0	0	0	0	1	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	Front Display (Dimmer)
RCKSK0410669	1	0	1	1	1	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	HDMI Monitor Select 1
RCKSK0410670	0	1	1	1	1	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	HDMI Monitor Select 2
RCKSK0410671	1	1	1	1	1	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	HDMI Monitor Select Auto (Dual)
RCKSK0410691	1	1	0	0	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	Internet Radio
RCKSK0410698	0	1	0	1	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	CD / PHONO
RCKSK0410704	0	0	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	PHONO
RCKSK0410705	1	0	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TUNER
RCKSK0410706	0	1	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	CD
RCKSK0410711	1	1	1	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	HEOS MUSIC
RCKSK0410715	1	1	0	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TUNER
RCKSK0410716	0	0	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	HEOS MUSIC
RCKSK0410718	0	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	USB
RCKSK0410719	1	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TUNER
RCKSK0410720	0	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DVD
RCKSK0410721	1	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Blu-ray
RCKSK0410722	0	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TV AUDIO
RCKSK0410723	1	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	CBL/SAT
RCKSK0410725	1	0	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	GAME
RCKSK0410726	0	1	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	MEDIA PLAYER
RCKSK0410729	1	0	0	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	AUX
RCKSK0410730	**0**	**1**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**1**	*	*	*	*	*	*	*	*	*	*	**8K**
RCKSK0410732	0	0	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DVD/Blu-ray
RCKSK0410735	1	1	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	MEDIA PLAYER
RCKSK0410736	0	0	0	0	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	MultEQ XT32

RCKSK0410741	1	0	1	0	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	INTERNET RADIO (Recent Play)
RCKSK0410746	0	1	0	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ ON
RCKSK0410747	1	1	0	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ OFF
RCKSK0410748	0	0	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME (Heavy)
RCKSK0410749	1	0	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME (Medium)
RCKSK0410750	0	1	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME (Light)
RCKSK0410751	1	1	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Bluetooth
RCKSK0410752	0	0	0	0	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	RESOLUTION
RCKSK0410753	1	0	0	0	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Monitor Select
RCKSK0410754	0	1	0	0	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	RESOLUTION (HDMI)
RCKSK0410757	1	0	1	0	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ASPECT (16:9)
RCKSK0410758	0	1	1	0	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ASPECT (4:3)
RCKSK0410760	0	0	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (0dB) for Dynamic EQ
RCKSK0410761	1	0	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (5dB) for Dynamic EQ
RCKSK0410762	0	1	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (10dB) for Dynamic EQ
RCKSK0410763	1	1	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (15dB) for Dynamic EQ
RCKSK0410787	1	1	0	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	INPUT SOURCE SELECT Right
RCKSK0410788	0	0	1	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	INPUT SOURCE SELECT Left
RCKSK0410789	1	0	1	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	Graphic EQ (toggle)
RCKSK0410791	1	1	1	1	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	Graphic EQ ON
RCKSK0410792	0	0	0	1	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	Graphic EQ OFF
RCKSK0410822	0	1	1	0	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	All Zone Stereo ON
RCKSK0410823	1	1	1	0	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	All Zone Stereo OFF
RCKSK0410826	0	1	0	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI (CEC) Control ON
RCKSK0410827	1	1	0	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI (CEC) Control OFF
RCKSK0410829	1	0	1	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI Audio Out Select
RCKSK0410830	0	1	1	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI Audio Out TV
RCKSK0410831	1	1	1	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI Audio Out AMP
RCKSK0410834	0	1	0	0	0	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	All Zone Stereo ON/OFF
RCKSK0410836	0	0	1	0	0	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	SLEEP MODE
RCKSK0410849	1	0	0	0	1	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	Video Mode Select
RCKSK0410850	0	1	0	0	1	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	Video Mode Select Auto
RCKSK0410851	1	1	0	0	1	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	Video Mode Select Movie
RCKSK0410852	0	0	1	0	1	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	Video Mode Select Game
RCKSK0410857	1	0	0	1	1	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	Loudness Management ON/OFF
RCKSK0410872	0	0	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (toggle)
RCKSK0410873	1	0	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (OFF)
RCKSK0410874	0	1	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (ON)
RCKSK0410875	1	1	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (AUTO)
RCKSK0410891	1	1	0	1	1	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	**Speaker Preset (Toggle)**
RCKSK0410892	0	0	1	1	1	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	**Speaker Preset 1**
RCKSK0410893	1	0	1	1	1	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	**Speaker Preset 2**
RCKSK0410945	1	0	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH UP/PAGE Previous
RCKSK0410946	0	1	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH DOWN/PAGE Next
RCKSK0410949	1	0	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	OPTION
RCKSK0410950	0	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	PAGE Previous
RCKSK0410951	1	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	PAGE Next
RCKSK0410956	0	0	1	1	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE REPEAT *AVR only
RCKSK0410957	1	0	1	1	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE RANDOM/SHUFFLE *AVR only
RCKSK0410970	0	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING UP *AVR only
RCKSK0410971	1	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING DOWN *AVR only
RCKSK0410972	0	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH UP *AVR only
RCKSK0410973	1	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH DOWN *AVR only
RCKSK0410976	0	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE Rewind
RCKSK0410977	1	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE BAND FM *AVR only
RCKSK0410978	0	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE BAND AM *AVR only
RCKSK0410979	1	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE Fast Forward
RCKSK0410983	1	1	1	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE SEARCH *AVR only
RCKSK0410992	0	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PLAY/PAUSE
RCKSK0410993	1	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE STOP
RCKSK0410994	0	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PAUSE
RCKSK0410995	1	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE SKIP MINUS/ TUNING DOWN
RCKSK0410996	0	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE SKIP PLUS/TUNING UP
RCKSK0410997	1	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING ▼ *AVR only
RCKSK0410998	0	1	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING ▲ *AVR only

ZONE2

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				3			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**1**	**1**	**0**	**0**

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				4			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**0**	**0**	**1**	**0**

No.	Data										ID		parity						Key Name
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
RCKSK0430005	1	0	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 POWER ON/OFF
RCKSK0430006	0	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 POWER ON
RCKSK0430007	1	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 POWER OFF
RCKSK0430016	0	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY1
RCKSK0430017	1	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY2
RCKSK0430018	0	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY3
RCKSK0430019	1	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY4
RCKSK0430020	0	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY5
RCKSK0430021	1	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY6
RCKSK0430022	0	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY7
RCKSK0430023	1	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY8
RCKSK0430024	0	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY9
RCKSK0430025	1	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY0
RCKSK0430027	1	1	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR UP
RCKSK0430028	0	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR DOWN
RCKSK0430029	1	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR LEFT
RCKSK0430030	0	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR RIGHT
RCKSK0430031	1	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 ENTER
RCKSK0430034	0	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 RETURN
RCKSK0430036	0	0	1	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 MEMORY *AVR only
RCKSK0430292	0	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 1
RCKSK0430293	1	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 2
RCKSK0430294	0	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 3
RCKSK0430295	1	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 4
RCKSK0430296	0	0	0	1	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 5
RCKSK0430368	0	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VOLUME UP
RCKSK0430369	1	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VOLUME DOWN
RCKSK0430370	0	1	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VOLUME MUTE
RCKSK0430372	0	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VR PRESET1 (0dB)
RCKSK0430373	1	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VR PRESET2 (-20dB)
RCKSK0430374	0	1	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VR PRESET3 (-40dB)
RCKSK0430691	1	1	0	0	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Internet Radio
RCKSK0430692	0	0	1	0	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	Main Zone Source CALL
RCKSK0430698	0	1	0	1	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 CD / PHONO
RCKSK0430704	0	0	0	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 PHONO
RCKSK0430705	1	0	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNER
RCKSK0430706	0	1	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 CD
RCKSK0430711	1	1	1	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 HEOS MUSIC
RCKSK0430715	1	1	0	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNER
RCKSK0430716	0	0	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 HEOS MUSIC
RCKSK0430718	0	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 USB
RCKSK0430719	1	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNER
RCKSK0430720	0	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 DVD
RCKSK0430721	1	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Blu-ray
RCKSK0430722	0	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TV AUDIO
RCKSK0430723	1	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 CBL/SAT
RCKSK0430725	1	0	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 GAME
RCKSK0430726	0	1	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 MEDIA PLAYER
RCKSK0430729	1	0	0	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 AUX
RCKSK0430730	0	1	0	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	**ZONE2 8K**
RCKSK0430732	0	0	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 DVD/Blu-ray
RCKSK0430735	1	1	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 MEDIA PLAYER
RCKSK0430741	1	0	1	0	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 INTERNET RADIO (Recent Play)
RCKSK0430751	1	1	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Bluetooth
RCKSK0430787	1	1	0	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 INPUT SOURCE SELECT Right
RCKSK0430788	0	0	1	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 INPUT SOURCE SELECT Left
RCKSK0430788	0	0	1	0	0	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SLEEP
RCKSK0430945	1	0	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH UP/ PAGE Previous
RCKSK0430946	0	1	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH DOWN/PAGE Next
RCKSK0430950	0	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PAGE Previous
RCKSK0430951	1	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PAGE Next
RCKSK0430970	0	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING UP *AVR only
RCKSK0430971	1	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING DOWN *AVR only
RCKSK0430972	0	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH UP *AVR only
RCKSK0430973	1	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH DOWN *AVR only
RCKSK0430976	0	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Rewind
RCKSK0430977	1	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 BAND FM *AVR only
RCKSK0430978	0	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 BAND AM *AVR only
RCKSK0430979	1	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Fast Forward
RCKSK0430983	1	1	1	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SEARCH *AVR only
RCKSK0430992	0	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PLAY/PAUSE
RCKSK0430993	1	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 STOP
RCKSK0430994	0	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PAUSE
RCKSK0430995	1	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SKIP MINUS/TUNING DOWN
RCKSK0430996	0	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SKIP PLUS/TUNING UP
RCKSK0430997	1	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING ▼ *AVR only
RCKSK0430998	0	1	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING ▲ *AVR only

ANALOG TUNER *AVR (NA/CHI) only

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				1			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**1**	**0**	**0**	**0**

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				2			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**0**	**1**	**0**	**0**

No.	Data										ID		parity						Key Name
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
RCKSK0410144	0	0	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	TUNING UP
RCKSK0410145	1	0	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	TUNING DOWN
RCKSK0410146	0	1	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET CH UP
RCKSK0410147	1	1	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET CH DOWN
RCKSK0410152	0	0	0	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	BAND FM/AM
RCKSK0410153	1	0	0	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	BAND FM
RCKSK0410154	0	1	0	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	BAND AM
RCKSK0410156	0	0	1	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	MODE AUTO/MANUAL
RCKSK0410160	0	0	0	0	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	MEMORY
RCKSK0410163	1	1	0	0	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	SEARCH
RCKSK0410166	0	1	1	0	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	RT (EU only)
RCKSK0410169	1	0	0	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PTY (EU only)
RCKSK0410170	0	1	0	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR UP
RCKSK0410171	1	1	0	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR DOWN
RCKSK0410173	1	0	1	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR LEFT
RCKSK0410174	0	1	1	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR RIGHT
RCKSK0410175	1	1	1	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR ENTER
RCKSK0410176	0	0	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 1 / Numeric 1
RCKSK0410177	1	0	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 2 / Numeric 2
RCKSK0410178	0	1	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 3 / Numeric 3
RCKSK0410179	1	1	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 4 / Numeric 4
RCKSK0410180	0	0	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 5 / Numeric 5
RCKSK0410181	1	0	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 6 / Numeric 6
RCKSK0410182	0	1	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 7 / Numeric 7
RCKSK0410183	1	1	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET 8 / Numeric 8
RCKSK0410184	0	0	0	1	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 9
RCKSK0410185	1	0	0	1	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 0
RCKSK0410241	1	0	0	0	1	1	1	1	0	0	*	*	*	*	*	*	*	*	*	*	RETURN

HEOS MUSIC

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				7			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**1**	**1**	**1**	**0**

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				8			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**0**	**0**	**0**	**1**

No.	Data										ID		parity						Key Name
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
RCKSK0470027	1	1	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR UP
RCKSK0470028	0	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR DOWN
RCKSK0470029	1	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR L
RCKSK0470030	0	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR RIGHT
RCKSK0470031	1	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ENTER
RCKSK0470034	0	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	RETURN
RCKSK0470773	1	0	1	0	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	PLAY
RCKSK0470774	0	1	1	0	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	PAUSE
RCKSK0470775	1	1	1	0	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	STOP
RCKSK0470776	0	0	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	SKIP PLUS
RCKSK0470777	1	0	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	SKIP MINUS
RCKSK0470778	0	1	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	REPEAT ONE
RCKSK0470779	1	1	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	REPEAT OFF
RCKSK0470780	0	0	1	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	RANDOM ON
RCKSK0470781	1	0	1	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	RANDOM OFF
RCKSK0470785	1	0	0	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	REPEAT ALL

MECHANICAL

DISASSEMBLY

Flowchart
1. FRONT ASSY
2. RADIATOR ASSY
3. TUNER PCB
4. REAR PANEL
5. DIGITAL PCB
6. VIDEO PCB
7. INPUT PCB
8. SPK PCB
9. SMPS PCB
10. TRANS

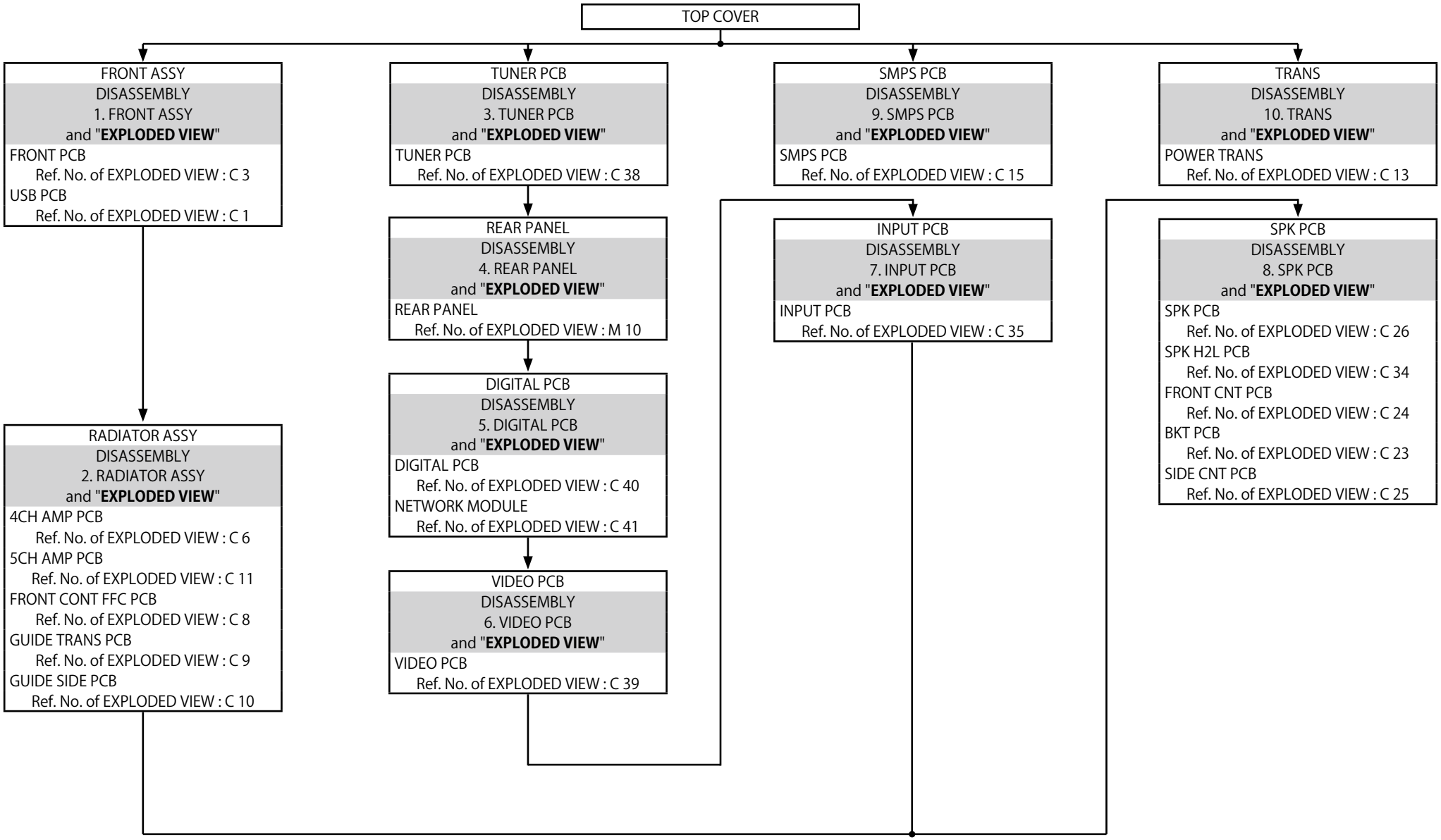
EXPLODED VIEW

PACKAGING VIEW

DISASSEMBLY

Flowchart

- Remove each part following the flow below.
- Reassemble the removed parts in the reverse order.
- Read "SAFETY PRECAUTIONS" before reassembling the removed parts.
- If wire bundles are removed or moved during adjustment or part replacement, reshape the wires after completing the work. Failure to shape the wires correctly may cause problems such as noise.
- See "EXPLODED VIEW"

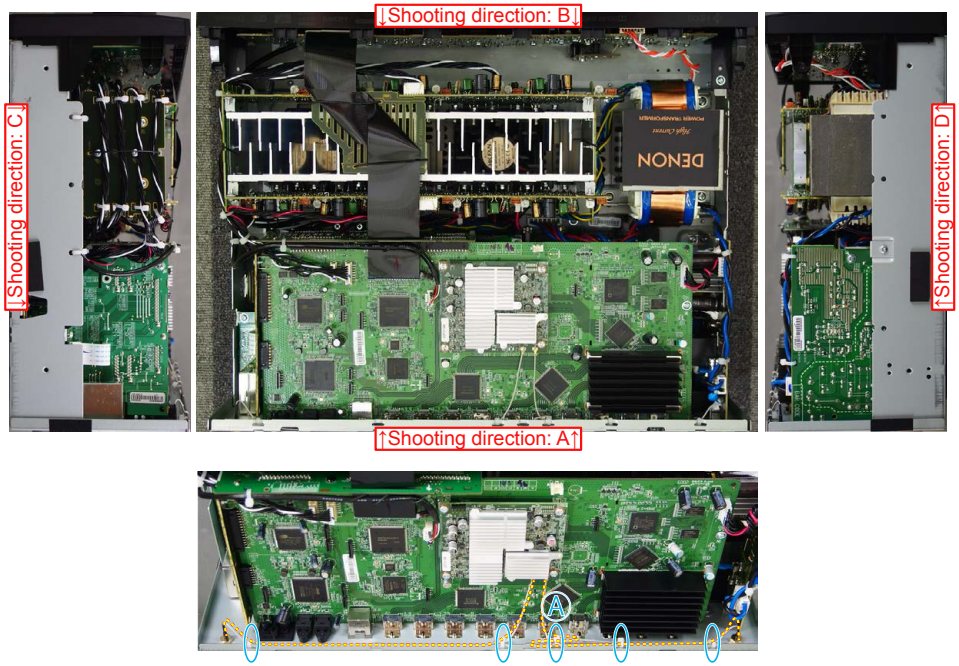


Explanatory Photos for DISASSEMBLY

- For the shooting direction of each photos used in this manual, see the photo below.
- **A, B, C and D** in the photo below indicate the shooting directions of photos.
- The photographs with no shooting direction indicated were taken from the top of the unit.
- Photos of AVR-X3700H E3 are used in this manual.

The viewpoint of each photograph

(Shooting direction : X) [View from the top]

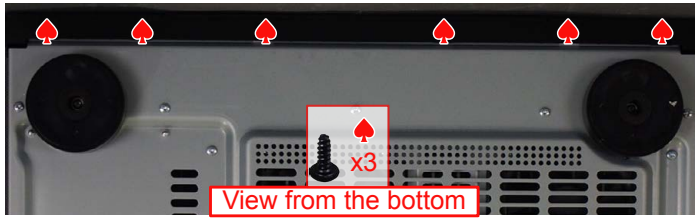


Caution : Turn up and spare wire at position Ⓐ .

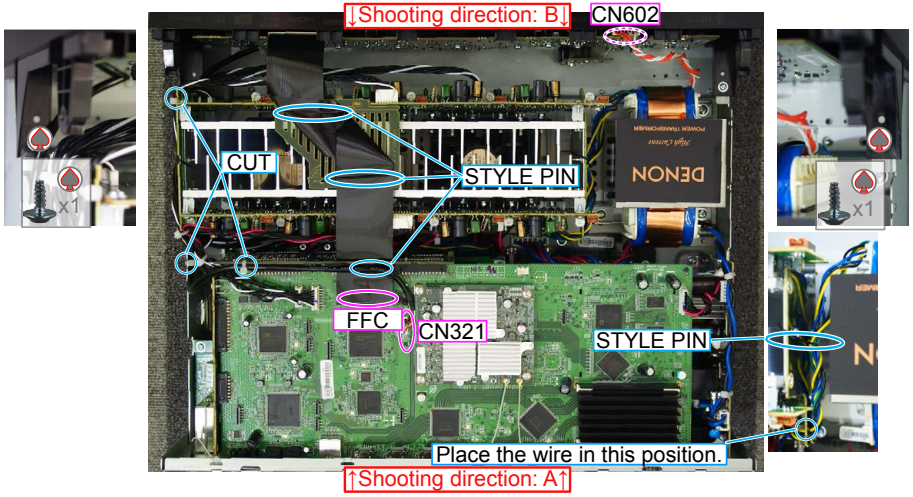
1. FRONT ASSY

Proceeding : TOP COVER → FRONT ASSY

(1) Remove the screws.



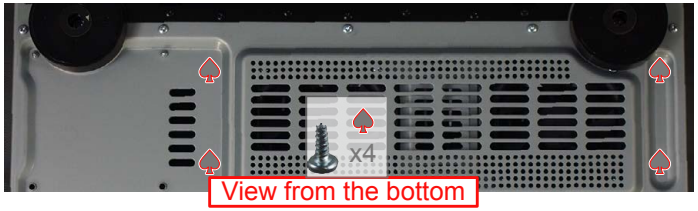
(2) Remove the screws. Remove the STYLE PIN and connectors. Remove the FFC. Cut the wire clamps.



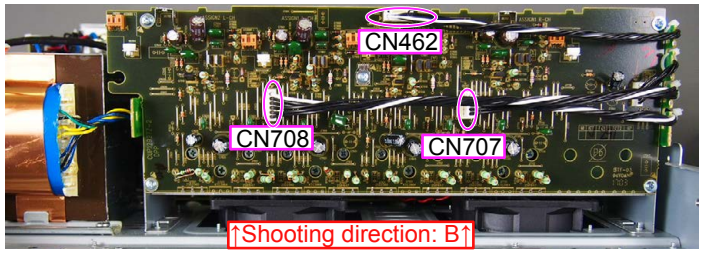
2. RADIATOR ASSY

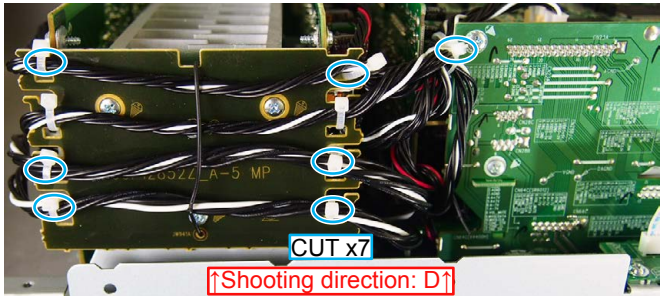
Proceeding : TOP COVER → FRONT ASSY → RADIATOR ASSY

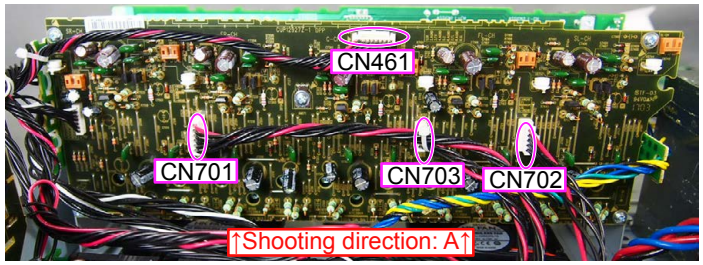
(1) Remove the screws.



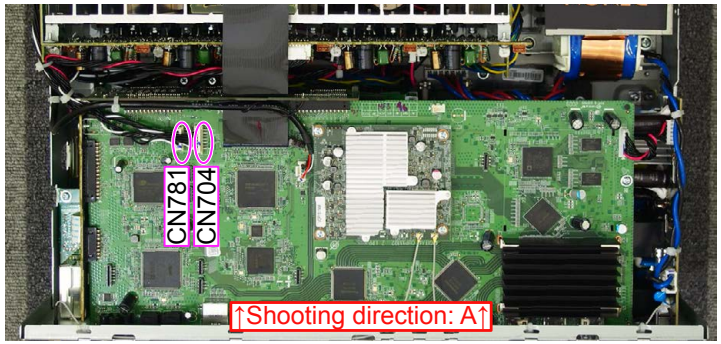
(2) Cut the wire clamp, then remove the connector.







(3) Remove the connector.



3. TUNER PCB

Proceeding : TOP COVER → TUNER PCB

See "EXPLODED VIEW" for instructions on removing the TUNER PCB.

4. REAR PANEL

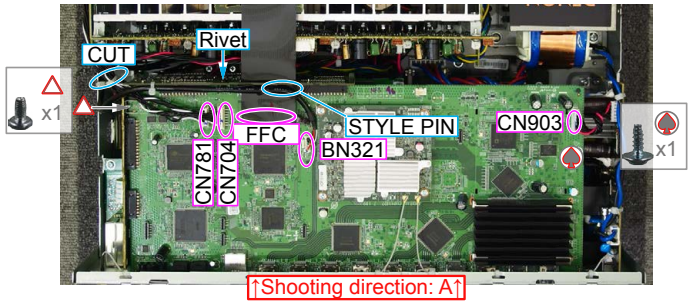
Proceeding : TOP COVER → TUNER PCB → REAR PANEL

(1) Remove the screws.

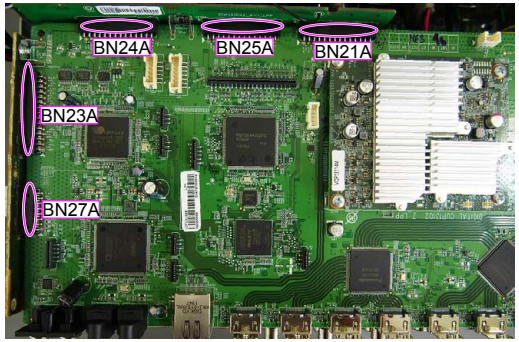
5. DIGITAL PCB

Proceeding : TOP COVER → TUNER PCB → REAR PANEL → DIGITAL PCB

(1) Remove the screws. Remove the Rivet. Cut the wire clamp, then remove the connector. Remove the FFC. Remove the STYLE PIN.



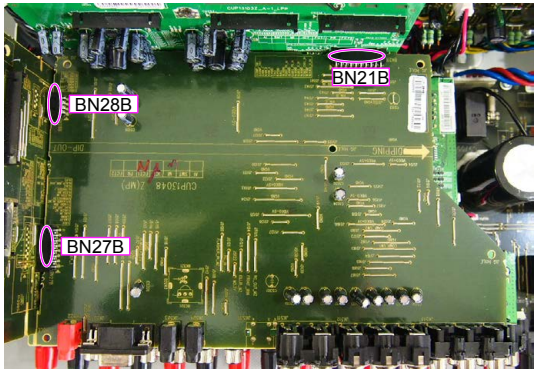
(2) Remove the connector.



6. VIDEO PCB

Proceeding : TOP COVER → TUNER PCB → REAR PANEL → DIGITAL PCB → VIDEO PCB

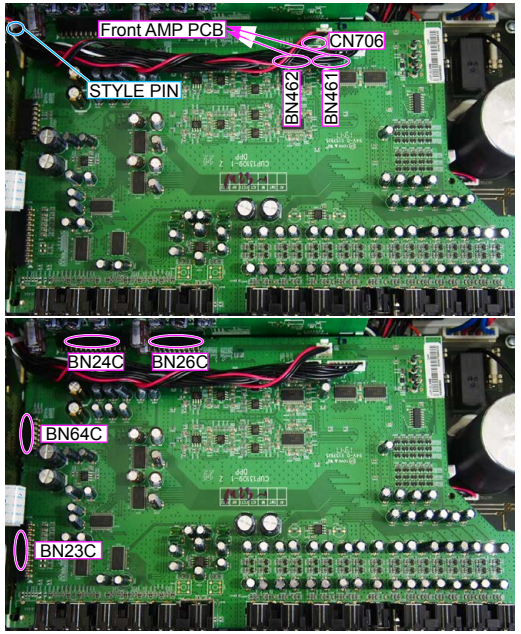
(1) Remove the connector.



7. INPUT PCB

Proceeding : TOP COVER → TUNER PCB → REAR PANEL → DIGITAL PCB → VIDEO PCB → INPUT PCB

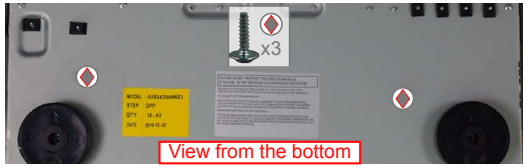
(1) Remove the connector. Remove the STYLE PIN.



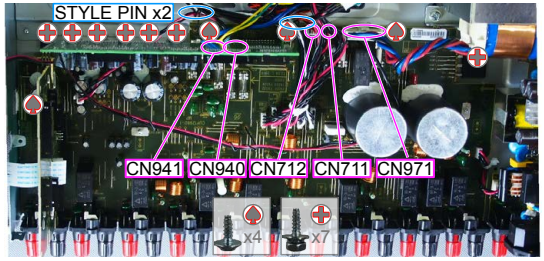
8. SPK PCB

Proceeding : TOP COVER → FRONT ASSY → RADIATOR ASSY → TUNER PCB → REAR PANEL → DIGITAL PCB → VIDEO PCB → INPUT PCB → SPK PCB

(1) Remove the screws.



(2) Remove the screws. Remove the connector. Remove the STYLE PIN.



9. SMPS PCB

Proceeding : TOP COVER → SMPS PCB

See "EXPLODED VIEW" for instructions on removing the SMPS PCB.

10. TRANS

Proceeding : TOP COVER → TRANS

See "EXPLODED VIEW" for instructions on removing the transformer (TRANS).

AVR-X3700H Parts List : https://dmedia.soundunited.com/documents/details/27083

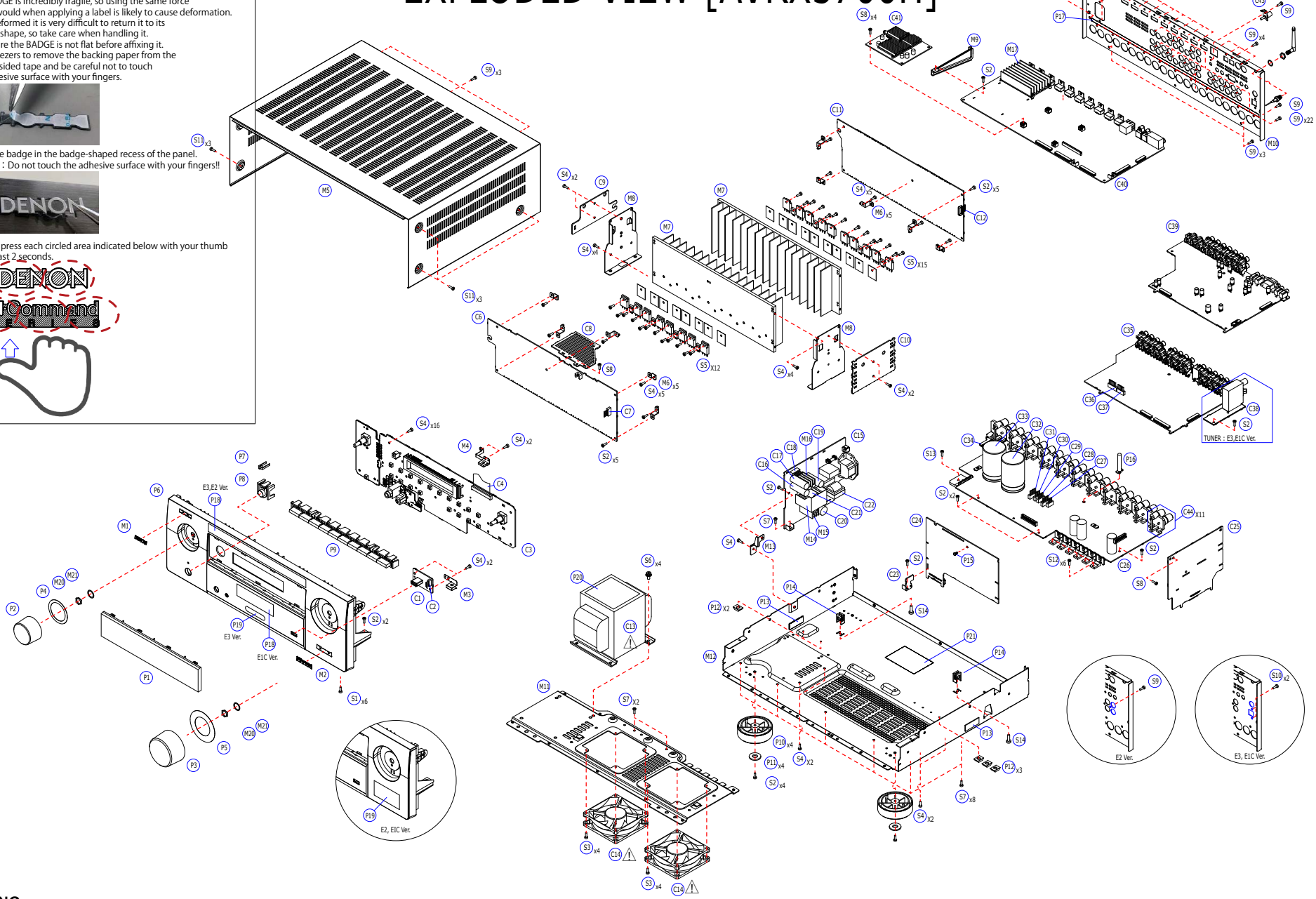
AVC-X3700H Parts List : https://dmedia.soundunited.com/documents/details/27084

EXPLODED VIEW [AVRX3700H]

Precautions when affixing the BADGE
(1) The BADGE is incredibly fragile, so using the same force as you would when applying a label is likely to cause deformation. Once deformed it is very difficult to return it to its original shape, so take care when handling it.
(2) Make sure the BADGE is not flat before affixing it.
(3) Use tweezers to remove the backing paper from the double-sided tape and be careful not to touch the adhesive surface with your fingers.

(4) Place the badge in the badge-shaped recess of the panel.
Caution：Do not touch the adhesive surface with your fingers!!

(5) To affix, press each circled area indicated below with your thumb for at least 2 seconds.

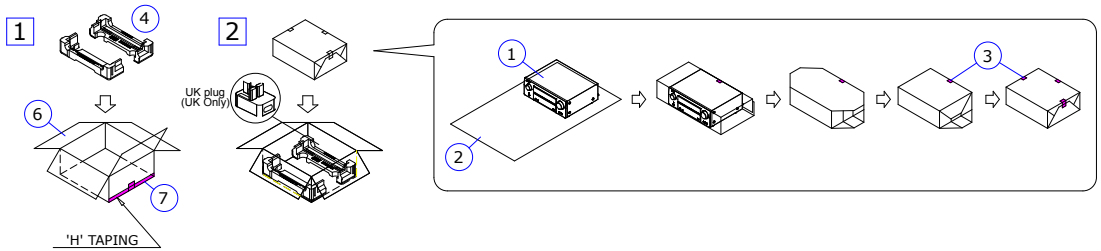


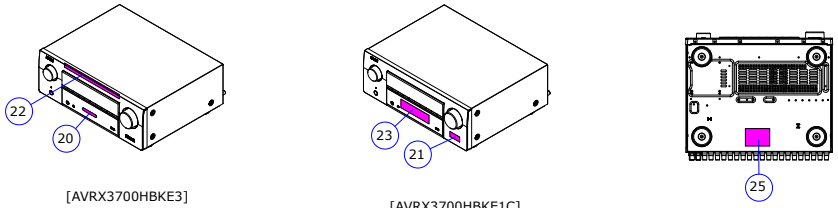
WARNING:
Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

PACKAGING VIEW

AVR-X3700H Parts List : https://dmedia.soundunited.com/documents/details/27083

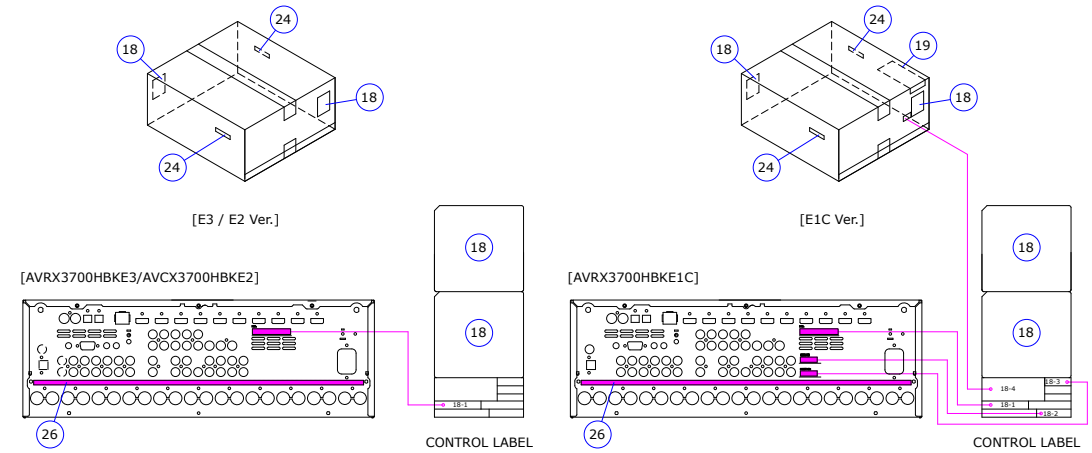
AVC-X3700H Parts List : https://dmedia.soundunited.com/documents/details/27084





[AVRX3700HBKE3]
[AVCX3700HBKE2]

[AVRX3700HBKE1C]



REPAIR INFORMATION

TROUBLE SHOOTING

1. POWER
2. Analog video
3. HDMI/DVI
4. AUDIO
5. Network / Bluetooth / USB
6. SMPS

PROTECTION DIAGRAM

AUDIO CHECK PATH

HDMI "Rx/Tx" Failure Detection

1. Prior checking
2. Preparations for checking HDMI Switcher reception/transmission register
3. Starting detecting the point of failure
4. Device implementation location

CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

SPECIAL MODE

Special mode setting button
1. Version Display Mode
2. PANEL / REMOTE LOCK Selection Mode
3-1. Selecting the Mode for Service-related
3-2. Protection History Display Mode
3-3. 232C Standby Clear Mode
3-4. Operation Info Mode
3-5. TUNER STEP mode (E3 only)
3-6. Remote ID Setup Mode
4. Protection Pass Mode
5. Network Initialization Mode
6. Clearing of Operation Info
7. Log Capture feature
8. Protection popups

DIAGNOSTIC MODE

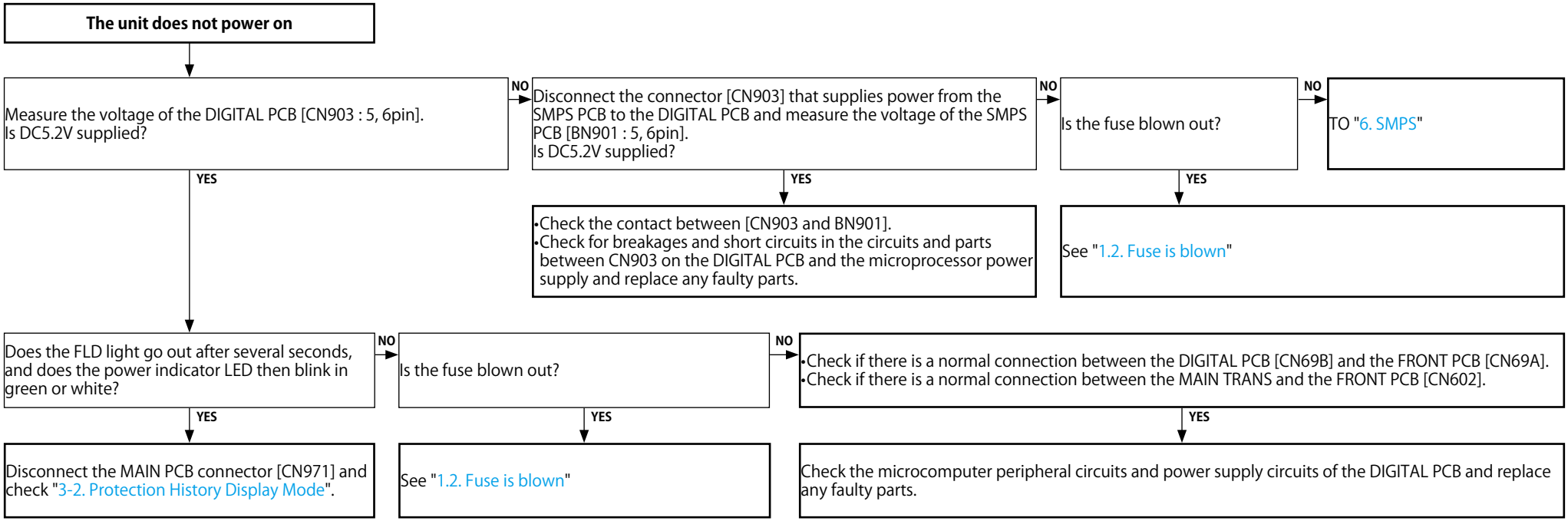
Service Path Check Mode
DIAGNOSTIC PATH DIAGRAM

JIG FOR SERVICING

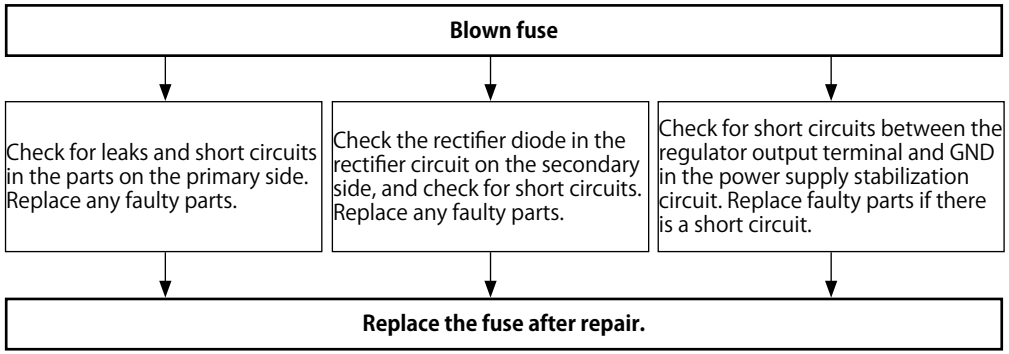
ADJUSTMENT

1. POWER

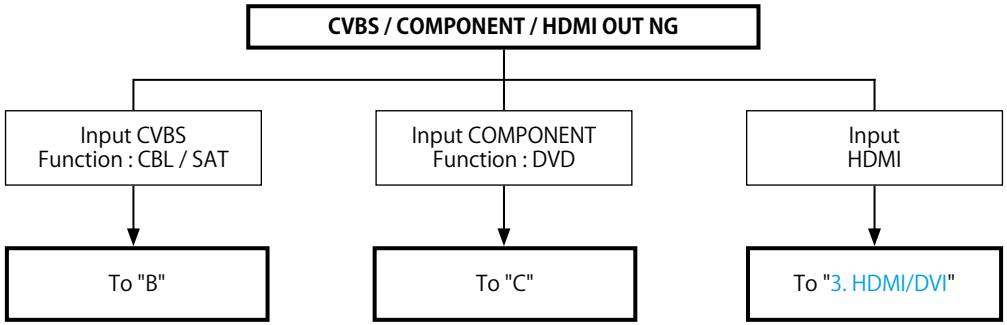
1.1. The unit does not power on



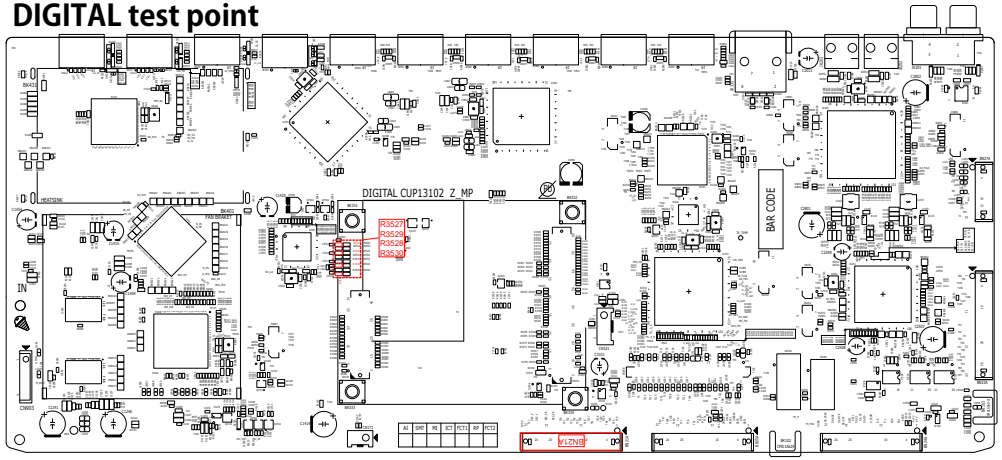
1.2. Fuse is blown



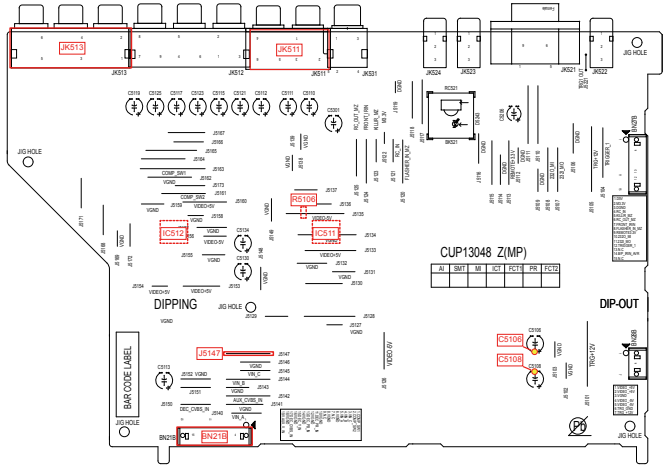
2. Analog video



DIGITAL test point



VIDEO test point



B

Input
CVBS

① Check the settings of each IC.
Are the following voltages set?
DIGITAL PCB
[BN21A : 13pin] : Hi (3.3V)
[BN21A : 14pin] : Hi (3.3V)
[BN21A : 15pin] : Lo (0V)

NO → DIGITAL PCB faulty.

YES ↓

② Extend the DIGITAL PCB using the jig.

③ Is the power voltage being output correctly?
V+5V : [C5106 : + side]
V-5V : [C5108 : - side]

NO → Check the connection between the SIDE CONNECTOR PCB and the VIDEO PCB.

NO → The regulator part of REG_SPK PCB is faulty.

YES ↓

④ Is a signal being output from the video amplifier?
CVBS : [J5147] [R5106]

NO →
- Check the [IC511] power voltage and check the soldering of the surrounding circuits.
- The pattern between [IC511, JK511 and BN21B] is faulty.

YES ↓

- Check the connection between the FRONT CONNECTOR PCB and the VIDEO PCB.
- Check the soldering of [BN21B] on the VIDEO PCB.
- Check the soldering of [BN21A] on the DIGITAL PCB.
- Check the soldering of [CN21A and CN21B] on the FRONT CONNECTOR PCB.

※ These instructions refer to the VIDEO PCB unless otherwise specified.

C

Input
COMPONENT

① Check the settings of each IC.
Are the following voltages set?
DIGITAL PCB
[BN21A : 16pin] : Hi (3.3V)
[BN21A : 17pin] : Lo (0V)

NO → DIGITAL PCB faulty.

YES ↓

② Extend the DIGITAL PCB using the jig.

③ Is the power voltage being output correctly?
V+5V : [C5106 : + side]
V-5V : [C5108 : - side]

NO → Check the connection between the SIDE CONNECTOR PCB and the VIDEO PCB.

NO → The regulator part of REG_SPK PCB is faulty.

YES ↓

④ Is a signal being output from the video amplifier?
COMP-Y : [BN21B : 15pin] [R5120]
COMP-CB : [BN21B : 13pin] [R5122]
COMP-CR : [BN21B : 11pin] [R5124]

NO →
- Check the [IC512] power voltage and check the soldering of the surrounding circuits.
- The pattern between [IC512, JK513 and BN21B] is faulty.

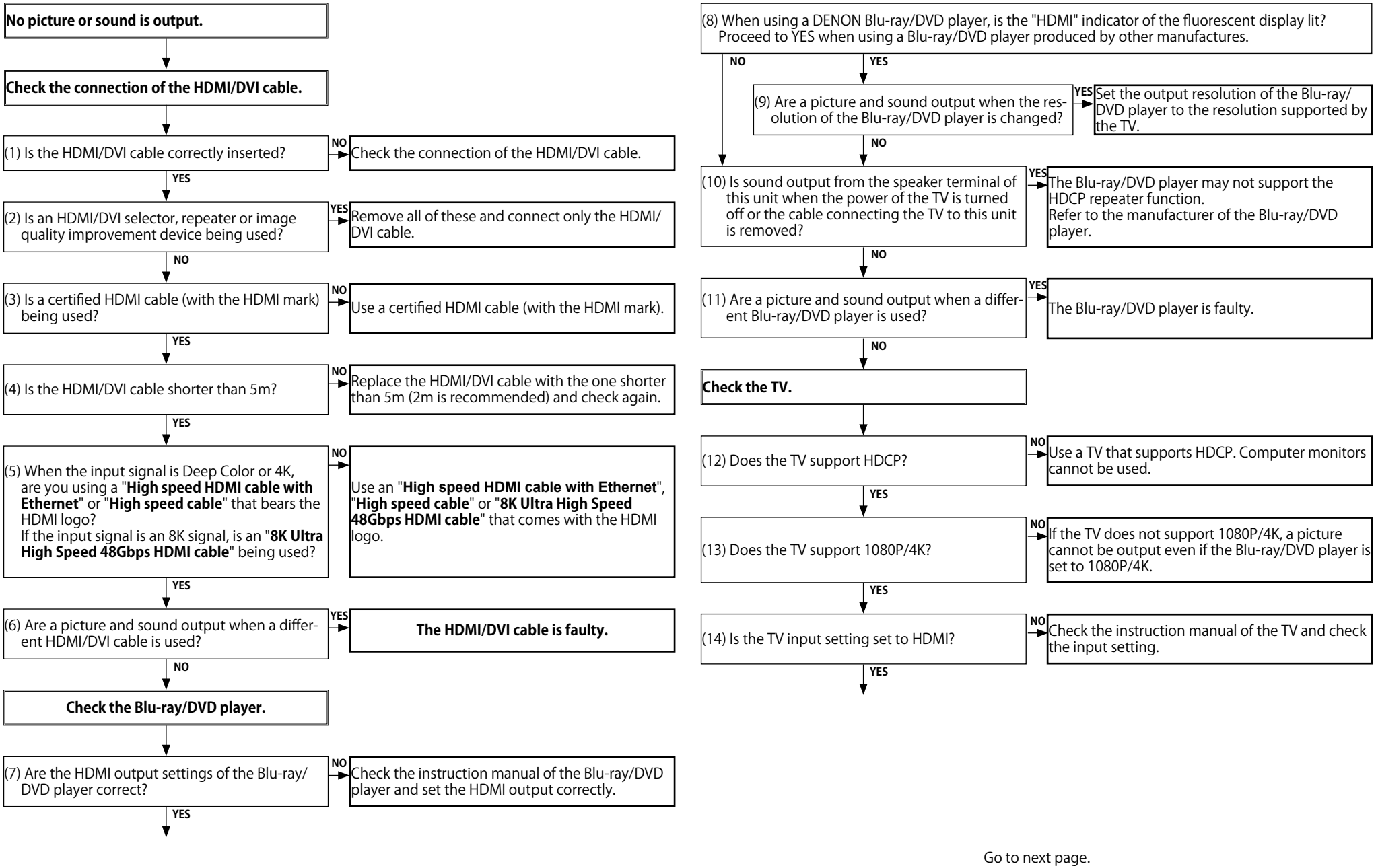
YES ↓

- Check the connection between the FRONT CONNECTOR PCB and the VIDEO PCB.
- Check the soldering of [BN21B] on the VIDEO PCB.
- Check the soldering of [BN21A] on the DIGITAL PCB.
- Check the soldering of [CN21A and CN21B] on the FRONT CONNECTOR PCB.
- Check the soldering of [JK513(E3)] on the VIDEO PCB.

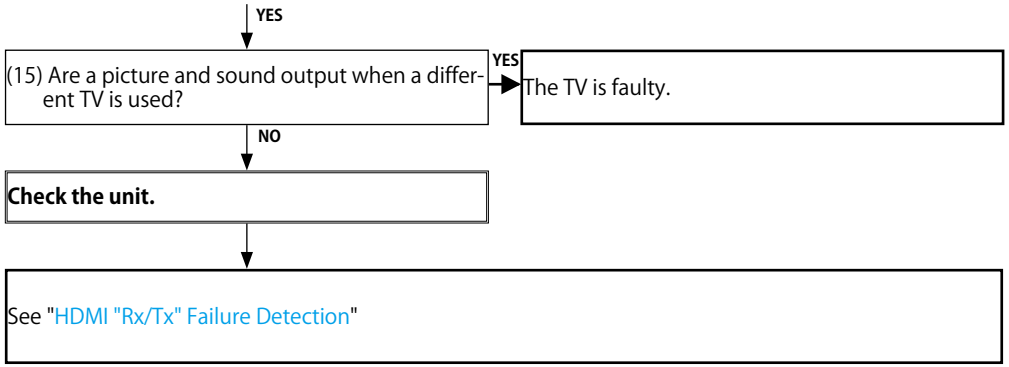
※ These instructions refer to the VIDEO PCB unless otherwise specified.

3. HDMI/DVI

3.1. No picture or sound is output (HDMI to HDMI)



Go to next page.


YES
(15) Are a picture and sound output when a different TV is used?
YES
The TV is faulty.
NO
Check the unit.
See "HDMI "Rx/Tx" Failure Detection"

4. AUDIO

4.1. AUDIO CHECK

⚠2 Caution : An incorrect combination of PCBs causes no audio output.

	FRONT CNT OLD PCB CUP13103Z_A-1	FRONT CNT NEW PCB CUP13239Z_A-1
DIGITAL OLD PCB CUP13102 Z	○	-
DIGITAL NEW PCB CUP13238 Z	-	○

No audio output

YES

CHECK 1	INPUT	SURROUND MODE	SOURCE
Audio output OK?	ANALOG 2CH	DIRECT	ANALOG

NO → Check the ANALOG AUDIO BLOCK

YES

CHECK 2	INPUT	SURROUND MODE	SOURCE
Audio output OK?	COAX or OPT	-	Legacy (PCM or DolbyDigital or dts···)

NO → Check the DIGITAL AUDIO BLOCK

YES

CHECK 3	INPUT	SURROUND MODE	SOURCE
Audio output OK?	ANALOG 2CH	MULTICH STEREO	ANALOG

NO → Check the ADC BLOCK

YES

CHECK 4	INPUT	SURROUND MODE	SOURCE
Audio output OK?	HDMI	-	Legacy (PCM2ch or DolbyDigital or dts···)

NO → Check the HDMI BLOCK

YES

CHECK 5	INPUT	SURROUND MODE	SOURCE
Audio output OK?	HDMI	-	HBR audio (DolbyTrueHD or dtsHD MA)

YES (DIGITAL AUDIO BLOCK is OK) → Check for other causes

NO

CHECK 6	INPUT	Connect	
AVR's (connected in HDMI) audio output OK?	HDMI	This unit's HDMI OUT → Other AVR's HDMI IN	
	Setting	SURROUND MODE	SOURCE
	CEC STANDBY	-	HBR audio(DolbyTrueHD or dtsHD MA)

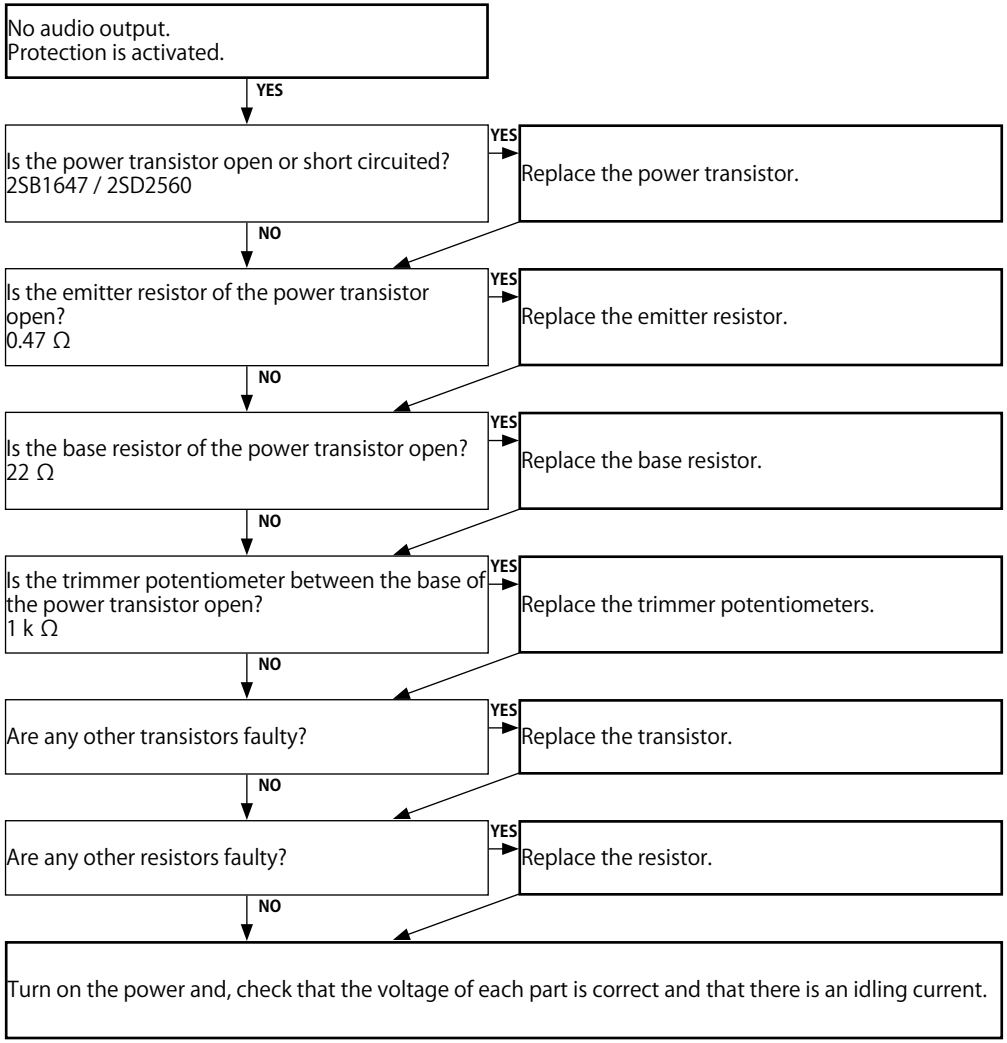
YES → Check the DIGITAL AUDIO BLOCK

NO → Check the HDMI BLOCK

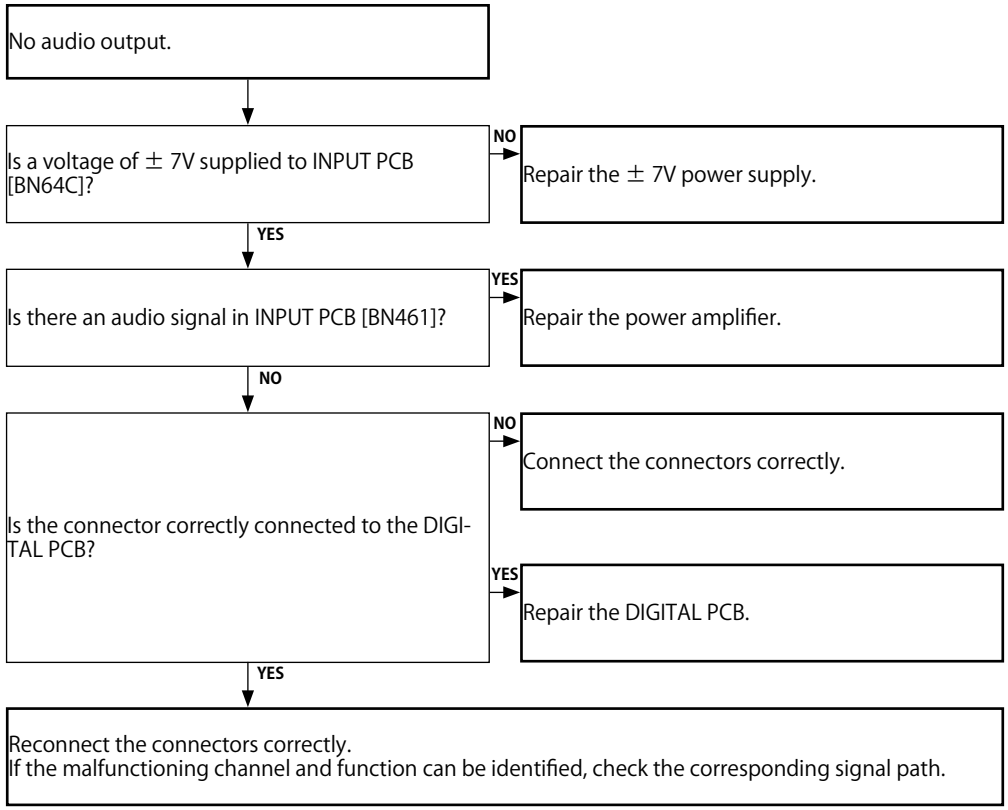
→ See "DIAGNOSTIC MODE"

4.2. Power AMP (AMP PCB)

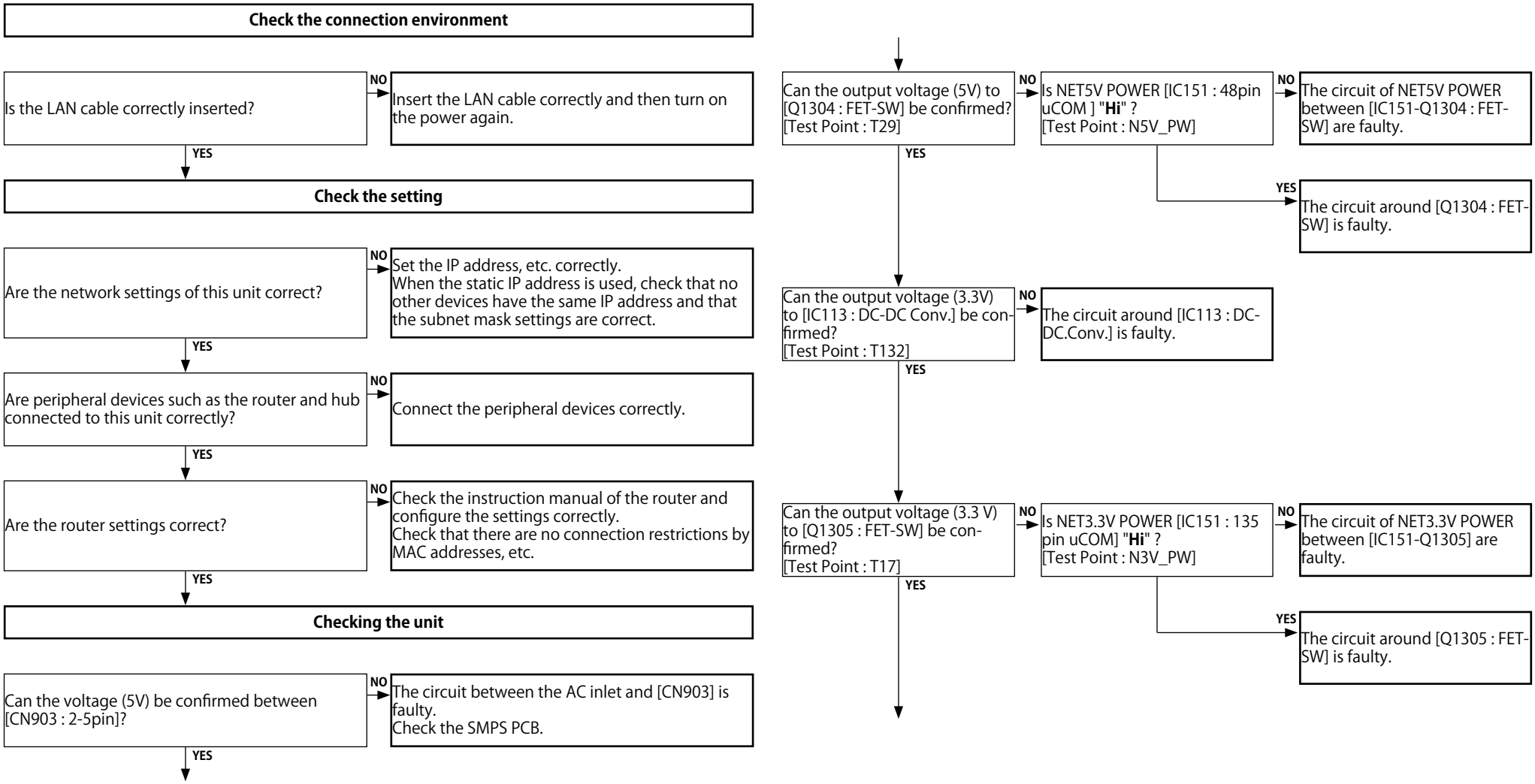
When using the protection pass mode, do not connect speakers to the speaker terminals.



4.3. Analog audio



5.1. Cannot connect to the network



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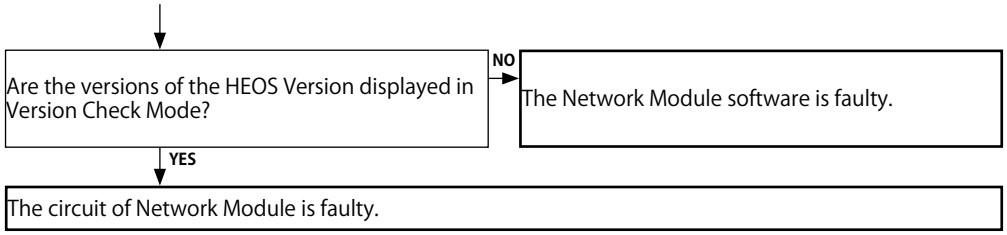
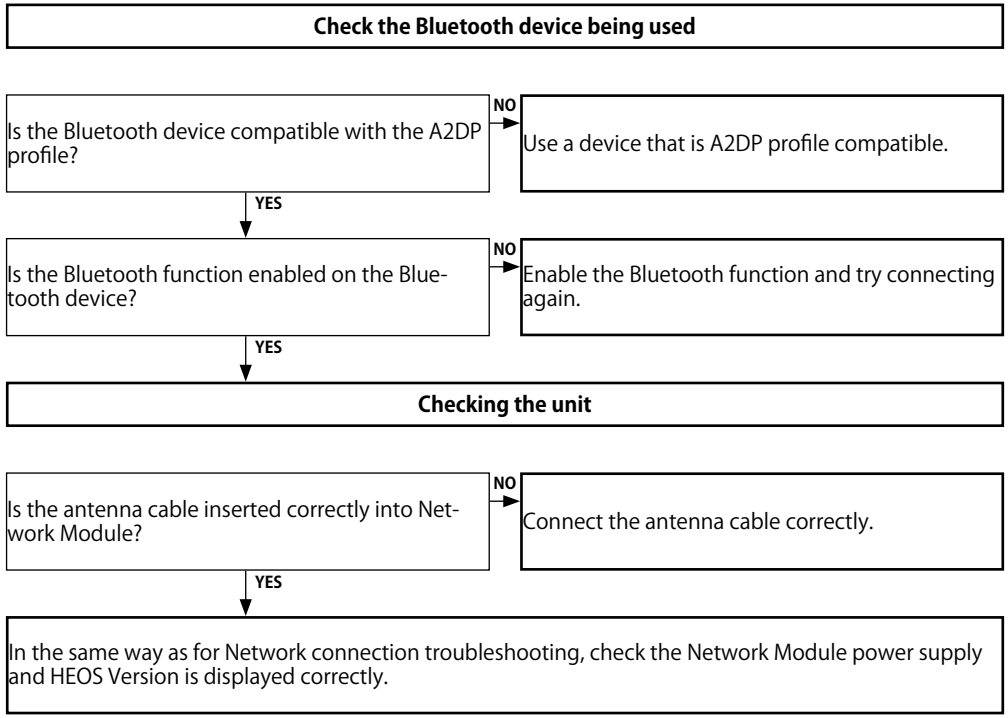


5.2. Cannot establish a Bluetooth connection



5.3. Cannot recognize the connected USB device

Check the USB device being used

Is a USB hub being used?
- YES → Do not use a USB hub.
- NO ↓

Is the USB device supported by this unit?
- NO → Supports mass storage class and MTP-compatible devices formatted to FAT16, FAT32 or NTFS.
- YES ↓

Checking the unit

Are [CN321] of the DIGITAL PCB and [BN321] of the FRONT PCB correctly connected?
- NO → Connect the connectors correctly.
- YES ↓

Can a voltage (5V) be confirmed between [JK608 : 1 - 4pin] (USB Connector) on FRONT PCB?
- NO → The circuit around [IC331] of the DIGITAL PCB is faulty.
- YES ↓

The USB signal circuit between Network Module and [JK608] of the FRONT PCB are faulty.

5.4. No picture or sound is output

Checking the unit (If no picture is output)

Are digital video signals(LEGOPCK, LEGOVS, LEGOHS, LEGODE, LEGOVD0-LEGOVD23) output from Network Module to [IC421 : V.PLD]?
- NO → The circuit around Network Module, [IC421 : V.PLD] is faulty.
- YES ↓

• Check the VIDEO circuit.

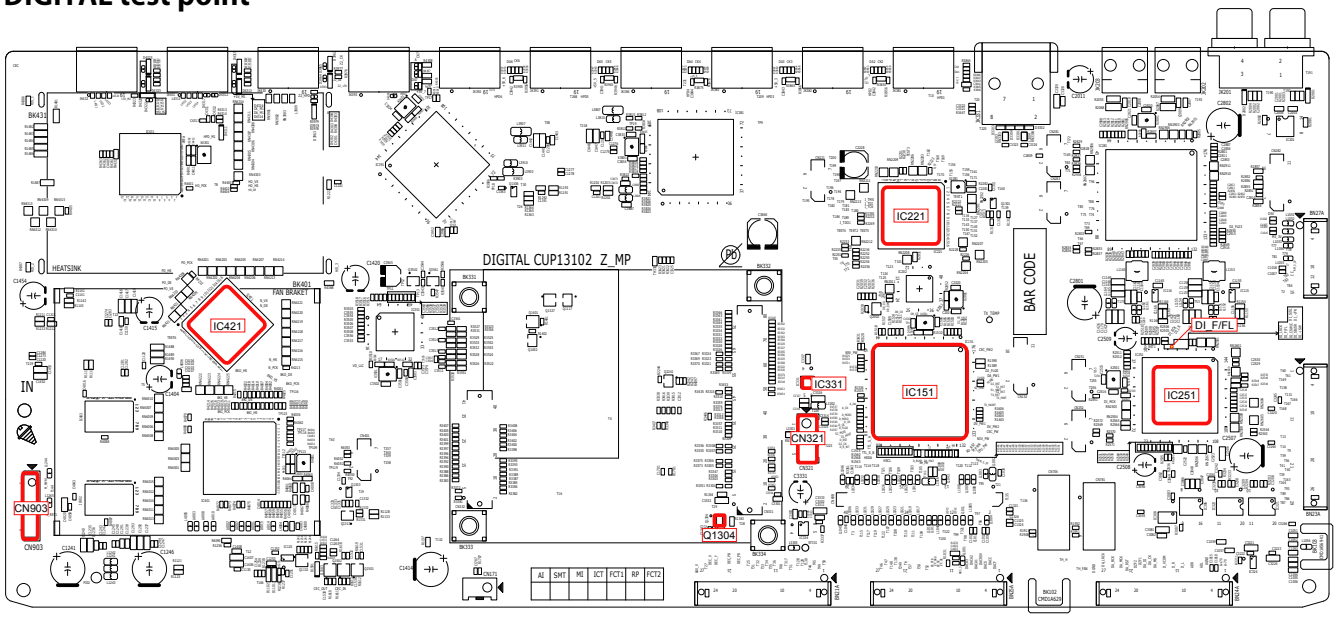
Checking the unit:(If no sound is output)

Are the I2S signal output to [CN331 : 7, 11, 13, 14pin] of the DIGITAL PCB ?
- NO → Network Module is faulty.
- YES ↓

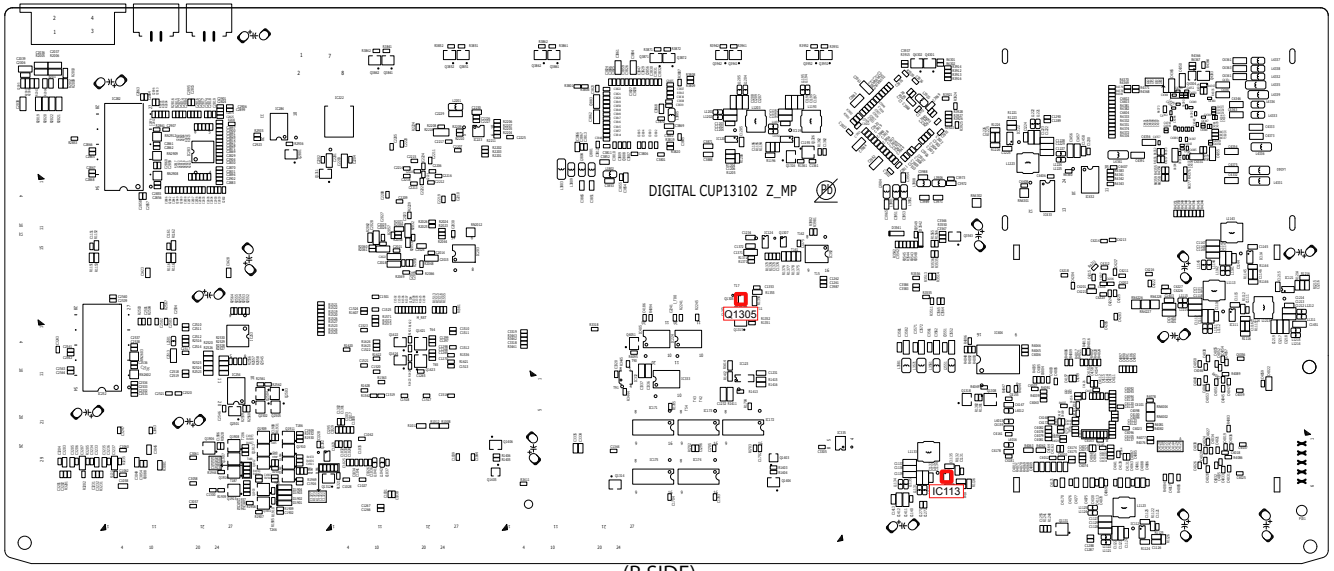
Are audio signal output to Test point DI_F/FL on DIGITAL PCB.
- NO → The circuit around [IC221 : A.PLD] is faulty.
- YES ↓

Check the [IC251 : DSP] AUDIO circuit and the circuits thereafter.

DIGITAL test point

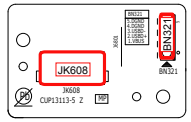


(A SIDE)



(B SIDE)

USB test point



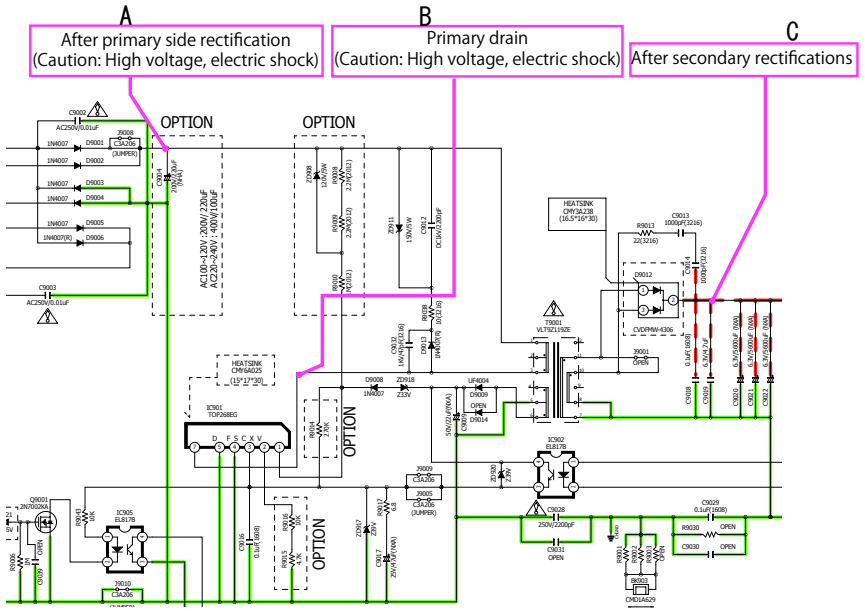
(A SIDE)

6. SMPS

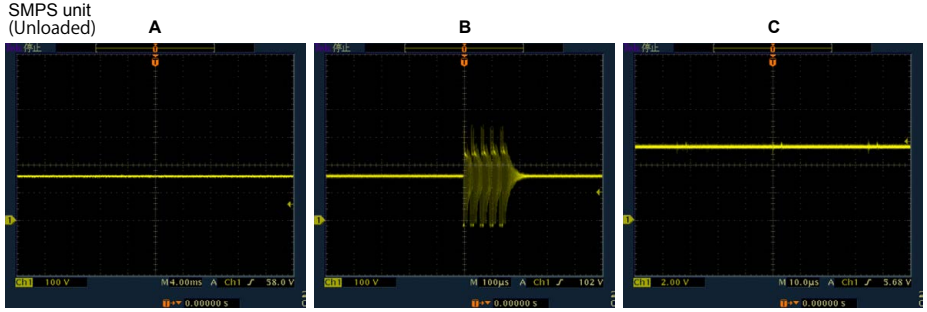
DC 5V is not output.

- Is [IC901 : TOP268EG] damaged?
  - YES → Replace the [IC901 : TOP268EG and D9001 / D9002 / D9003 / D9004].
  - NO ↓
- Is the fuse [F9001] functioning properly?
  - YES → Is [D9001 / D9002 / D9003 / D9004 / IC901] damaged?
    - YES → Replace the damaged part.
  - NO ↓
- Are there any short circuits caused by the soldering on the PCB?
  - YES → Repair the short circuited area on the PCB.
  - NO ↓
- Are any parts damaged?
  - YES → Check the damaged parts.
    - YES → Replace the damaged part.

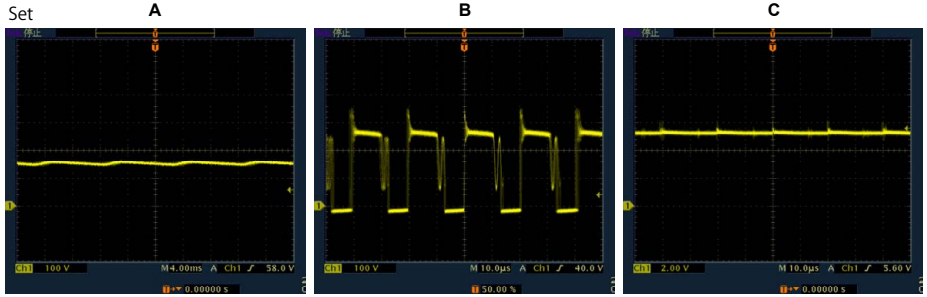
Operation waveform for each part



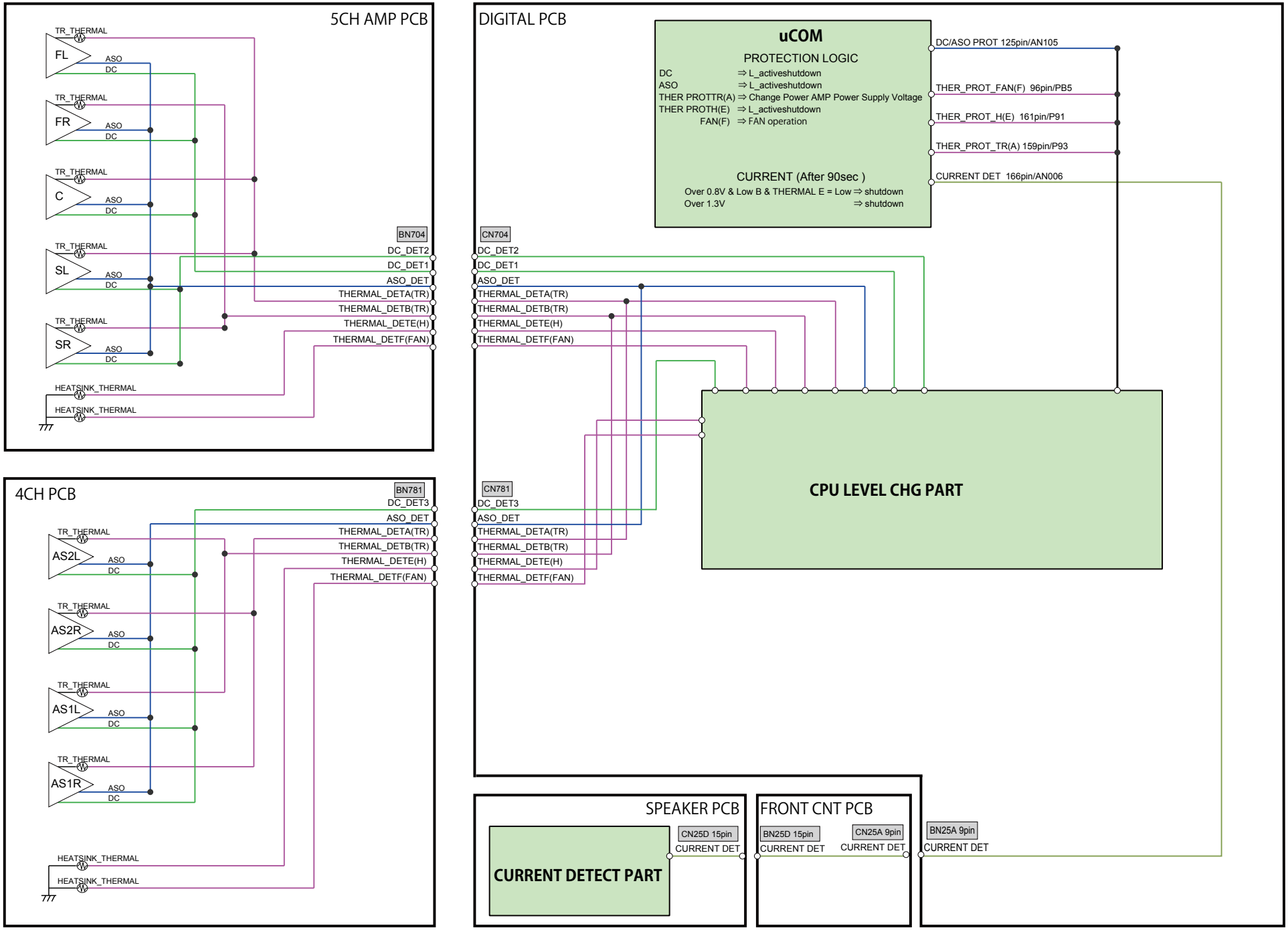
SMPS unit (Unloaded)



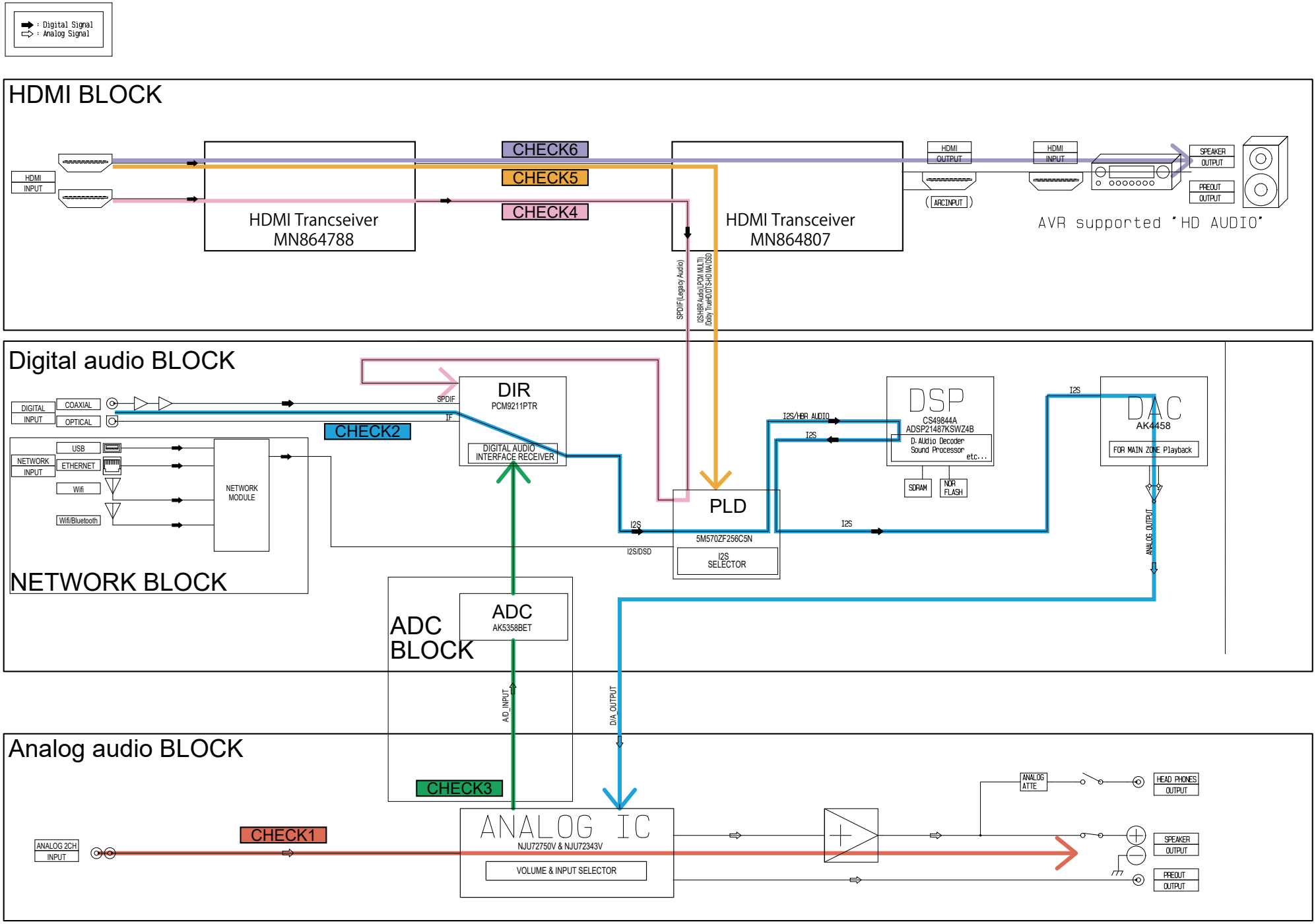
Set



PROTECTION DIAGRAM



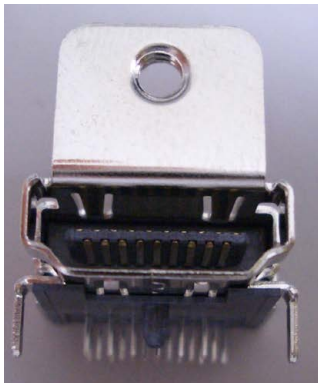
AUDIO CHECK PATH



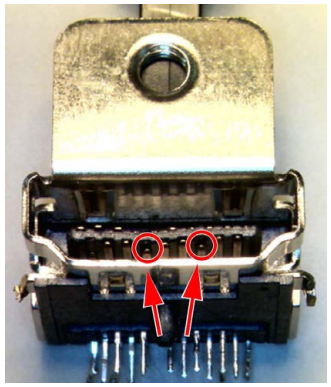
HDMI "Rx/Tx" Failure Detection

1. Prior checking

Check item(1.). : Checking the HDMI connector
Checking the condition of the HDMI pin (rear/front).



OK



NG

Check for deformed pins.

There are deformed pins.

Replace the HDMI connector.

None of the pins are deformed.

Check by following the flow chart for "3. Starting detecting the point of failure".
NOTE :
After checking troubleshooting "3. HDMI/DVI", check "3. Starting detecting the point of failure".

2. Preparations for checking HDMI Switcher reception/transmission register

2-1. Necessary devices

1) Check the product settings.
2-a) Player with an HDMI terminal
2-b) TV with an HDMI terminal (* NOTE : Do not use a computer monitor.)
3) Windows PC
4) Serial communication software "**Termite.exe**"
(Download the software from http://www.compuphase.com/software_termite.htm and install it.)
5) HDMI cable
6) RS-232C Straight cable
7) oscilloscope

2-2. Device Connection Method

Connect the TV and the AVR to the player using an HDMI cable and connect the AVR to the PC through an RS-232C cable as shown in Figure 1.

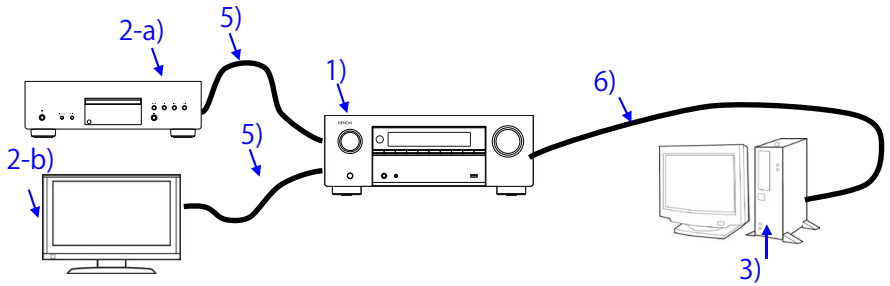


Figure 1. Device Connection Method

2-3. Device configuration method

PC settings : Execute the serial communication program, Termite.exe.

After executing Termite.exe, click [Settings].

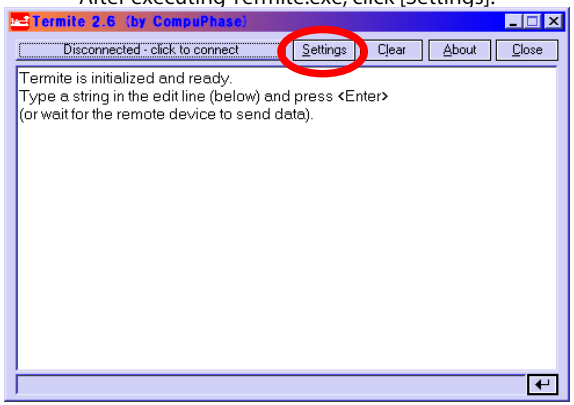


Figure 2. Screen After Executing Termite.exe

The serial port setup screen will be displayed.
Configure the settings as shown in Figure 3 and click the "**OK**" button.

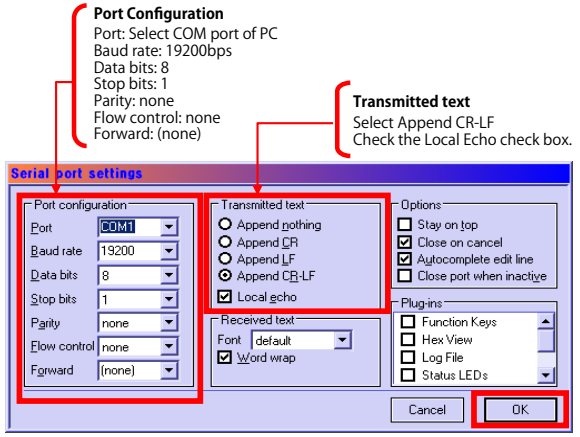


Figure 3. Serial Port Setup Screen

Click the [click to connect] button to start communication.
After a connection is established successfully, the display of the button name will change as shown in Figure 4.

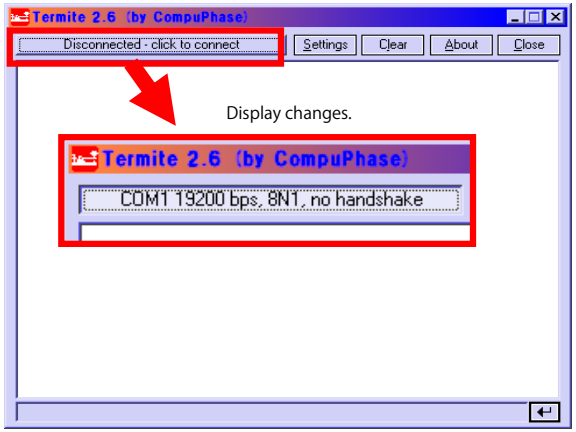


Figure 4. Change of the Display of the Communication Start Button Name

TV settings : Switch to the HDMI input in the AVR connection.
Player settings : Turn the unit power on and configure it to play disks.
AVR settings :

AVR-X3700H for E3, E1C

While the power is on, hold down buttons "**TUNER PRESET CH +**" and "**ZONE2 SOURCE**" for at least 3 seconds.

AVC-X3700H for E2

While the power is on, hold down buttons "**SOUND MODE**" and "**ZONE2 SOURCE**" for at least 3 seconds.

(Press and hold until the two indicator lights at the bottom right of the FLD blink.)
※ When the power is turned on after initialization, "**Setup Assistant**" will be displayed.
After exiting "**Setup Assistant**" execute the above.

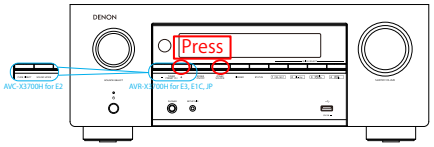


Figure 6. AVR settings

Figure 6. FLD Display When Set

When the settings are correct, the following message will be displayed in the window of Termite.
[00]Start Sub CPU Log Mode
****
(**** is a version of Sub CPU.)

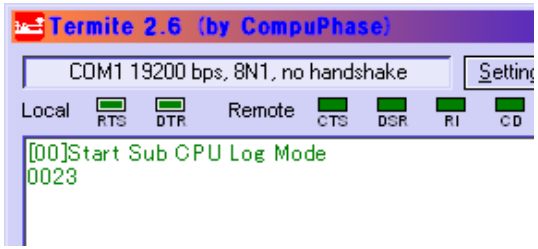


Figure 7. Display of Termite When AVR is Set

The setup is now complete.

Method for sending commands
Enter the command in the transmission command entry section, click the [Send] button and send the command.

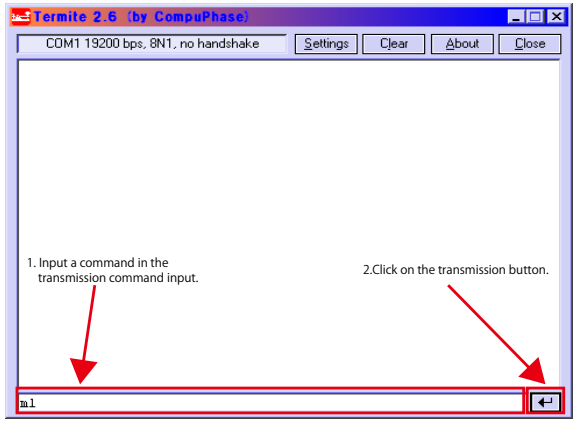


Figure 8. Method for Sending Termite Commands

3. Starting detecting the point of failure

Check item(3.1.).
Check the power supply status and communication status with the CPU of each device.
Start in HDMI Diagnostics mode and follow the procedures below.

Start in HDMI Diagnostics mode

AVR-X3700H for E3, E1C, JP

While the power is On, hold down buttons "**TUNER PRESET CH -**" and "**ZONE2 SOURCE**" for at least 3 seconds.

AVC-X3700H for E2

While the power is On, hold down buttons "**PURE DIRECT**" and "**ZONE2 SOURCE**" for at least 3 seconds.

```
HDMI DIAGNOSTICS
```

↓ "**HDMI DIAGNOSTICS**" is displayed.

When the mode has switched, start Hardware Check.

```
HardwareCheck...
```

↓

Display when an Error is detected.

```
Err:  H1-XX
```

↓↑ Alternating display.

```
Contact support
```

Check the Error Code table items.

Error Code table

Error Code	Check item No.	Description	
H1-01	Check item (3-1.1.)	Communication Error with HDMI Tx	[IC431 : MN864807]
H1-02	Check item (3-2.1.)	Communication Error with HDMI SW1	[IC391 : MN864788]
H1-03	Check item (3-3.1.)	Communication Error with HDMI SW2	[IC381 : MN864788]
H1-06	Check item (3-4.1.)	Communication Error with GUI IC	[IC401 : ADV8003]
H1-08	Check item (3-7.1.)	Communication Error with DSP1	[IC251 : CS49844A]
H1-09	Check item (3-8.1.)	Communication Error with DSP2	[IC281 : ADSP21487KSWZ]
H1-12	Check item (3-9.1.)	Communication Error with DIR	[IC202 : PCM9211]
H1-14	Check item (3-5.1.)	DDR check Error	[IC402, IC403 : A3R12E40DBF-8E]
H1-15	Check item (3-6.1.)	Communication Error with GUI ROM	[IC404 : BY25Q128ASFIG]

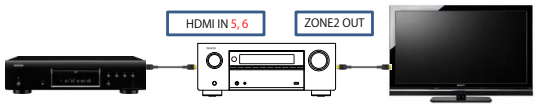
Display when an Error is not detected.

```
1 Auto Test
```

Cancel the mode, and proceed to check item (3.2.).

Canceling the selected mode
Press the power button to exit off the power.

Check item(3.2.). : Does a video signal come from HDMI ZONE2 OUT to TV correctly?

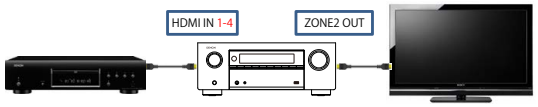


When the HDMI input terminal (HDMI5, 6) are connected in order to the player, are the audio and video from the player played back on the TV correctly in each case?

NO → Go to check item (3-10.1.). (Switcher1 failure detection procedure)

YES ↓

Check item(3.3.). : Does a video signal come from HDMI ZONE2 OUT to TV correctly?

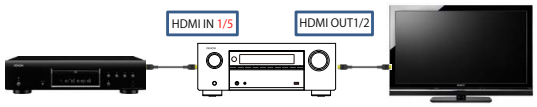


When the HDMI input terminal (HDMI 1, 2, 3, 4) are connected in order to the player, are the audio and video from the player played back on the TV correctly in each case?

NO → Go to check item (3-11.1.). (Switcher2 failure detection procedure)

YES ↓

Check item(3.4.). Does a video signal come from HDMI OUT to TV correctly?



Turn Video Conversion "**OFF**" on the setup menu.
(SETUP MENU - Video - Output Settings - Video Conversion = Off)
When the player is connected in order to the HDMI input terminals (HDMI1, 5), in each case is the player video played back on the TV connected to the HDMI output terminal (HDMI OUT1, 2)?

NO → Go to check item (3-12.1.). (Tx failure detection procedure)

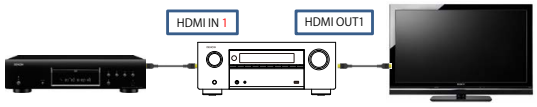
YES ↓

When the HDMI input terminal (HDMI IN7) is connected to the player, the video from the player will be played back on the TV?
Use any of Dolby TrueHD/DTSHD MA/PCM 8ch for the playback audio format.

NO → Is the "**DIG**" indicator illuminated on the FLD?
When the "**DIG**" indicator is illuminated, the DIGITAL AUDIO block is faulty.
If the "**DIG**" indicator is not illuminated, go to check item (3-13.1.).
(HDMI IN7 failure detection procedure)

YES ↓

Check item(3.5.). Does a video signal come from HDMI OUT to TV correctly?



Turn Video Conversion "**ON**" on the setup menu.
(SETUP MENU - Video - Output Settings - Video Conversion = On)
When the HDMI input terminal (HDMI 1) is connected to the player, the video from the player will be played back on the TV?

NO → Go to check item (3-14.1.). (GUI and PLD failure detection procedure)

YES ↓

There are no problems with the HDMI device.

3-1. Error Code H1-01 failure detection procedure

Checking device. [IC431 : MN864807]

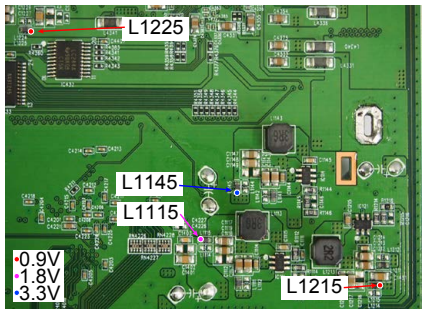
↓

Check the power supply voltage. (HDMI Tx)

↓

Check item(3-1.1.). Check the power supply voltage. :
Does the power supply voltage of the HDMI Tx [IC431] indicate the correct voltage (0.9V x2, 1.8V, 3.3V)?
The test points are as follows.

HDMI Tx



YES ↓

NO ↓

Check item(3-1.2.). Check the power supply voltage. :
Check the power components [IC121/IC122/IC111/IC114] and the pattern on the substrate.
If there is no problem, remove the HDMI Tx [IC431] from the sub-strate and measure the voltage at the test point of check item (3-1.1.).
Is the voltage correct (0.9V x2, 1.8V, 3.3)?

YES ↓

Replace with a new device.

↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

NO ↓

The power supply circuit is faulty.
Replace the PCB.

↓

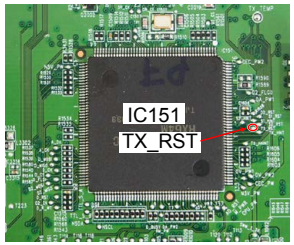
Recheck from check item (3.1.).
If it does not work, replace the PCB.

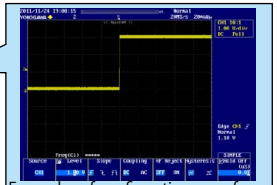
Checking the reset waveform. (HDMI Tx)

↓

Check item(3-1.3.). Checking the reset waveform :
Check the waveform.
Is the "TX_RST" waveform of the TP near the CPU [IC151] correct (like the one shown in the diagram) when the power is turned on?

HDMI Tx





Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

NO →

Check the reset circuit between CPU [IC151] and HDMI Tx [IC431].
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.
Recheck from check item (3.1.).
If it does not work, replace the PCB.

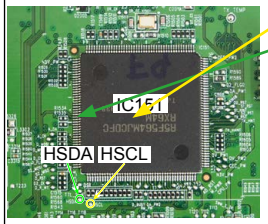
YES ↓

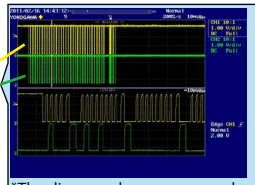
Go to next page.

Check the I2C communication line. (HDMI Tx)

YES

Check item(3-1.4.). Check the I2C communication line :
Check the CPU.
Is the "HSCL, HSDA" waveform of the TP near the CPU [IC151] correct (like the one shown in the diagram) when the power is turned on?





*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- SCL frequency (400kHz normally)
Voltage scale : 1.0V/div
Time scale : 10us/div

NO

Check item(3-1.5.). Check the I2C communication line :
Check HDMI SW [IC381 or IC391], HDMI Tx [IC431] and CPU [IC151] patterns as well as soldering.
If there is no problem, go to the next step.

YES

HDMI Tx [IC431] is faulty.
Replace with a new device.

YES

Recheck from check item (3.1.).
If it does not work, replace the PCB.

Check the HDMI Tx.
Remove the damping resistor [R4381/R4382] of [IC431].
Is the "**I2C**" waveform correct?

NO

Check the HDMI SW1.
Remove the damping resistor [R3914/R3916] of [IC391].
Is the "**I2C**" waveform correct?

NO

Check the HDMI SW2.
Remove the damping resistor [R3812/R3814] of [IC381].
Is the "**I2C**" waveform correct?

YES

HDMI Tx [IC431] is faulty.
Replace with a new device.

YES

HDMI SW1 [IC391] is faulty.
Replace with a new device.

YES

HDMI SW2 [IC381] is faulty.
Replace with a new device.

NO

CPU [IC151] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-2. Error Code H1-02 failure detection procedure

Checking device. [IC391 : MN864788]

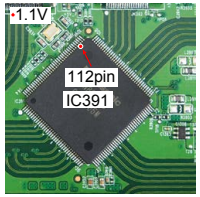
↓

Check the power supply voltage. (HDMI SW1)

↓

Check item(3-2.1.). Check the power supply voltage. :
Does the power supply voltage of the HDMI SW1 [IC391] indicate the correct voltage (1.1V)?
The test points are as follows.

HDMI SW1



YES ↓

NO ↓

Check item(3-2.2.). Check the power supply voltage. :
Check the power components [IC119] and the pattern on the sub-strate.
If there is no problem, remove the HDMI SW1 [IC391] from the sub-strate and measure the voltage at the test point of check item (3-2.1.).
Is the power supply voltage correct (1.1V)?

YES ↓

Replace with a new device.

↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

NO ↓

The power supply circuit is faulty.
Replace the PCB.

↓

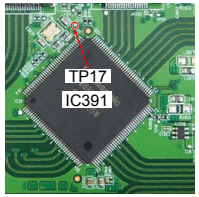
Recheck from check item (3.1.).
If it does not work, replace the PCB.

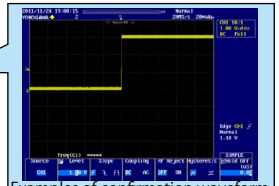
Checking the reset waveform. (HDMI SW1)

↓

Check item(3-2.3.). Checking the reset waveform :
Check the waveform.
Is the "TP17" waveform of the TP near the HDMI SW1 [IC391] correct (like the one shown in the diagram) when the power is turned on?

HDMI SW1





Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

NO →

Check the reset circuit between CPU [IC151] and HDMI SW1 [IC391].
If there is no problem, the HDMI SW1 [IC391] is faulty.
Replace with a new device.

↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

YES ↓

check item (3.1.) again after replacing [R3914/R3916] with a new resistor.
If there is still a problem, the HDMI SW1 [IC391] is faulty.
Replace with a new device.

↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

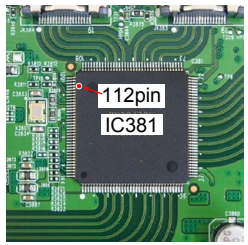
3-3. Error Code H1-03 failure detection procedure

Checking device. [IC381 : MN864788]

Check the power supply voltage. (HDMI SW2)

Check item(3-3.1.). Check the power supply voltage. :
Does the power supply voltage of the HDMI SW2 [IC381] indicate the correct voltage (1.1V)?
The test points are as follows.

HDMI SW2



YES

NO

Check item(3-3.2.). Check the power supply voltage. :
Check the power components [IC120/IC113] and the pattern on the substrate.
If there is no problem, remove the HDMI SW2 [IC381] from the substrate and measure the voltage at the test point of check item (3-3.1.).
Is the power supply voltage correct (1.1V)?

YES

Replace with a new device.

NO

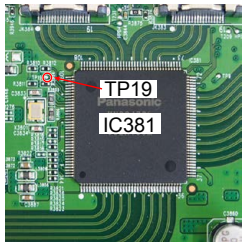
The power supply circuit is faulty.
Replace the PCB.

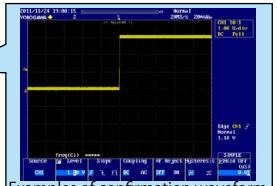
Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI SW2)

Check item(3-3.3.). Checking the reset waveform :
Check the waveform.
Is the "TP19" waveform of the TP near the HDMI SW2 [IC381] correct (like the one shown in the diagram) when the power is turned on?

HDMI SW2





Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

NO

Check the reset circuit between CPU [IC151] and HDMI SW2 [IC381].
If there is no problem, the HDMI SW2 [IC381] is faulty.
Replace with a new device.
Recheck from check item (3-3.3.)
If it does not work, replace the PCB.

YES

check item (3.1.) again after replacing [R3812/R3814] with a new resistor.
If there is still a problem, the HDMI SW2 [IC381] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-4. Error Code H1-06 failure detection procedure

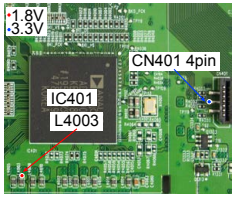
Checking device. [IC401 : ADV8003]

↓

Check the power supply voltage.

↓

Check item(3-4.1.). Check the power supply voltage. :
Does the power supply voltage of the GUI [IC401] indicate the appropriate voltage (1.8V, 3.3V)?
The test points are as follows.



NO →

Check item(3-4.2.). Check the power supply voltage. :
Check the power supply components [IC112/Q1303] on the substrate and peripheral pattern.
If there is no problem, remove the GUI [IC401] from the substrate and measure the voltage at the test point of check item (3-4.1.).
Is the voltage correct (1.8V or 3.3V)?

YES → ↓

NO →

The power supply circuit is faulty.
Replace the PCB.

↓

GUI [IC401] is faulty.
Replace with a new device.

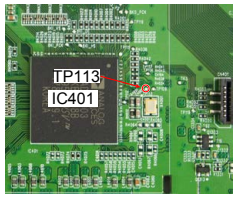
↓

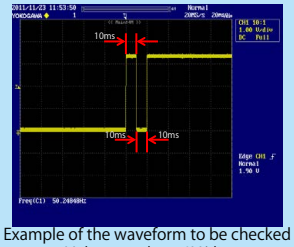
Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform.

↓

Check item(3-4.3.). Checking the reset :
Check the CPU.
Is the waveform of the TP near the GUI [IC401] correct (like the one shown in the diagram) when the power is turned on?





Example of the waveform to be checked
Voltage scale : 1.0V/div
Time scale : 20ms/div

YES → ↓

NO →

Check the reset circuit between CPU [IC151] and GUI [IC401].
If there is no problem, the GUI [IC401] is faulty.
Replace with a new device.

↓

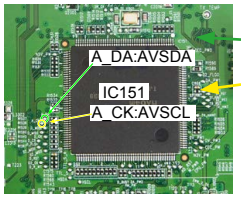
Recheck from check item (3.1.).
If it does not work, replace the PCB.

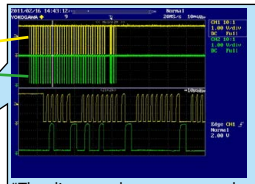
Go to next page.

Check the I2C communication line.

YES

Check item(3-4.4.). Check the I2C communication line :
Check the CPU.
Is the "AVSCL, AVSDA" waveform of the TP near the CPU [IC151] correct (like the one shown in the diagram) when the power is turned on?





*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- SCL frequency (400kHz normally)
Voltage scale : 1.0V/div
Time scale : 10us/div

YES

NO

Check item(3-4.5.). Check the I2C communication line :
Check GUI [IC401], FET [Q1001] patterns as well as soldering.
If there is no problem, go to the next step.

Check the I2C communication line again after replacing the FET [Q1001].
If there is still a problem, the GUI [IC401] is faulty.
Replace with a new device.

GUI [IC401] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-5. Error Code H1-14 failure detection procedure

Checking device. [IC402, IC403 : A3R12E40DBF-8E]

Check item(3-5.1.).
Check soldering of IP SCALER [IC401], DDR2 [IC402/IC403] and its peripheral circuits.
Check soldering of the resistors [R4076 to R4082, RN401 to RN415] between IP SCALER and DDR2.
If there is no problem with soldering, [IC401/IC402/IC403] is defective. Replace their IC. Or replace the substrate.

↓

Recheck from check item (3.1.).

3-6. Error Code H1-15 failure detection procedure

Checking device. [IC404 : BY25Q128ASFIG]

↓

Check item(3-6.1.).
Write to the GUI ROM.

Recheck from check item (3.1.).
Does Error Code H1-15 continue?

NO → Recheck from check item (3.2.).

YES ↓

Check item(3-6.2.).
Replace [IC403] with a new device.

Recheck from check item (3.1.).
Does Error Code H1-15 continue?

NO → Recheck from check item (3.2.).

YES ↓

Go to check item (3-4.1.).

3-7. Error Code H1-08 failure detection procedure

Checking device. (DSP1) [IC251 : CS49844A]

↓

Check the power supply voltage. (DSP1)

↓

Check item(3-7.1.). Check the power supply voltage. :
Does the power supply voltage of the DSP [IC251] indicate the appropriate voltage (1.0V, 3.3V)?
The test points are as follows.

NO →

Check item(3-7.2.). Check the power supply voltage. :
Check the power supply components [IC115/Q1302] on the substrate and peripheral pattern.
If there is no problem, remove the DSP [IC251] from the substrate and measure the voltage at the test point of check item (3-7.1.).
Is the voltage correct (1.0V, 3.3V)?

YES → ↓

NO →

The power supply circuit is faulty.
Replace the PCB.

↓

DSP [IC251] is faulty.
Replace with a new device.

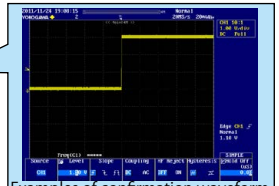
↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform. (DSP1)

↓

Check item(3-7.3.). Checking the reset :
Check the CPU.
Is the "D_RST1" waveform of the TP near the CPU [IC151] correct (like the one shown in the diagram) when the power is turned on?



Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

YES → ↓

NO →

Check the reset circuit between CPU [IC151] and DSP [IC251].
If there is no problem, the DSP [IC251] is faulty.
Replace with a new device.

↓

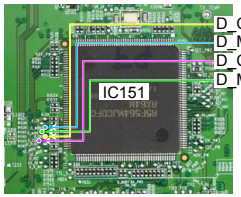
Recheck from check item (3.1.).
If it does not work, replace the PCB.

Go to next page.

Check the SPI communication line. (DSP1)

YES

Check item(3-7.4.). Check the SPI communication line :
Check the CPU.
Is the "**D_CK**", "**D_MISO**", "**D_MOSI**", "**D_CS**" waveform of the TP near the CPU [IC151] correct (like the one shown in the diagram) when the power is turned on?



D_CK:CLK
D_MOSI:MOSI
D_CS:CS
D_MISO:MISO

*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- CLOCK frequency (about 1.2MHz)
Voltage scale : 2.0V/div
Time scale : 2us/div

YES

NO

Check item(3-7.5.). Check the SPI communication line :
Check DSP [IC251], CPU[IC151] patterns as well as soldering.
If there is no problem, go to the next step.

DSP [IC251] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-8. Error Code H1-09 failure detection procedure

Checking device. (DSP2) [IC281 : ADSP21487KSWZ]

↓

Check the power supply voltage. (DSP2)

↓

Check item(3-8.1.). Check the power supply voltage. :
Does the power supply voltage of the DSP [IC281] indicate the appropriate voltage (1.1V)?
The test points are as follows.

NO →

Check item(3-8.2.). Check the power supply voltage. :
Check the power supply components [IC116] on the substrate and peripheral pattern.
If there is no problem, remove the DSP [IC281] from the substrate and measure the voltage at the test point of check item (3-7.1.).
Is the voltage correct (1.1V, 1.5V, 3.3V)?

YES → NO →

The power supply circuit is faulty.
Replace the PCB.

YES →

DSP [IC281] is faulty.
Replace with a new device.

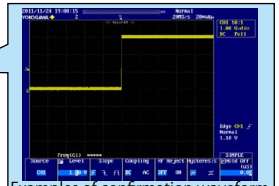
↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform. (DSP2)

↓

Check item(3-8.3.). Checking the reset :
Check the CPU.
Is the "D2_RST" waveform of the TP near the CPU [IC151] correct (like the one shown in the diagram) when the power is turned on?



Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

YES → NO →

Check the reset circuit between CPU [IC151] and DSP [IC281].
If there is no problem, the DSP [IC281] is faulty.
Replace with a new device.

↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

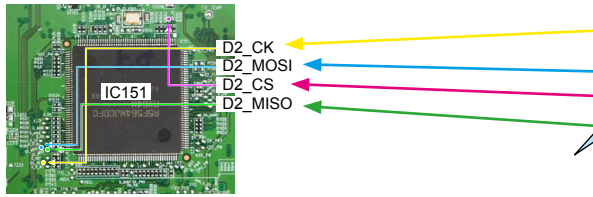
YES →

Go to next page.

Check the SPI communication line. (DSP2)

YES

Check item(3-8.4.). Check the SPI communication line :
Check the CPU.
Is the "**D2_CK**", "**D2_MISO**", "**D2_MOSI**", "**D2_CS**" waveform of the TP near the CPU [IC151] correct (like the one shown in the diagram) when the power is turned on?



*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- CLOCK frequency (about 1.2MHz)
Voltage scale : 2.0V/div
Time scale : 2us/div

YES

NO

Check item(3-8.5.). Check the SPI communication line :
Check DSP [IC281], CPU[IC151] patterns as well as soldering.
If there is no problem, go to the next step.

DSP [IC281] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-9. Error Code H1-12 failure detection procedure

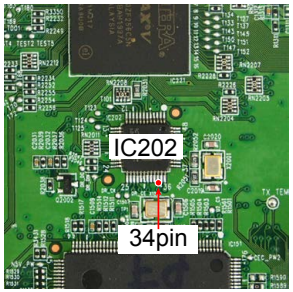
Checking device. [IC202 : PCM9211]

↓

Checking the reset waveform. (DIR)

↓

Check item(3-9.1.). Checking the reset :
Check the CPU.
Is the waveform of the TP near the DIR [IC202] correct (like the one shown in the diagram) when the power is turned on?



Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

YES ↓ NO

Check the reset circuit between CPU [IC151] and DIR [IC202].
If there is no problem, the DIR [IC202] is faulty.
Replace with a new device.

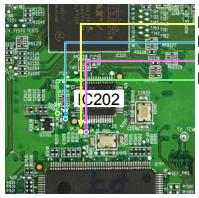
↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

Check the communication line. (DIR)

↓ YES

Check item(3-9.2.). Check the communication line :
Check the CPU.
Is the waveform of the TP near the DIR [IC202] correct (like the one shown in the diagram) when the power is turned on?



DR_CK:CLK
DR_DIN:MOSI
DR_CE:CS
DR_DO:MISO

*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- CLOCK frequency (about 2MHz)
Voltage scale : 2.0V/div
Time scale : 2us/div

YES ↓ NO

Check item(3-9.3.). Check the communication line :
Check DIR [IC202], CPU[IC151] patterns as well as soldering.
If there is no problem, go to the next step.

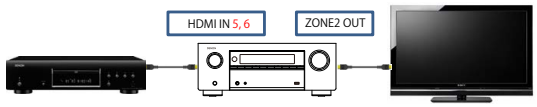
↓

DIR [IC202] is faulty.
Replace with a new device.

↓

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-10. Switcher1 failure detection procedure



※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Next, turn on the power for the player and TV and start playback on the player.

↓

Checking the +5V/DDC status register (HDMI Switcher1)

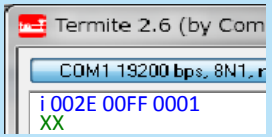
↓

Check item(3-10.1.). Checking the 5V status register :
Send the following command from Termite.exe.

Send the command "i 002E 00FF 0001".

Case of IN5
Is the return value "A2 or A0" ?
(IN6 : "91 or 90")

Example



YES

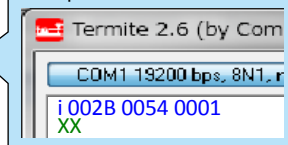
NO → Go to check item (3-10.3.).

Check item(3-10.2.). Checking the DDC status register :
Send the following command from Termite.exe.

Case of IN5
Send the command "i 002B 0054 0001".
Case of IN6
Send the command "i 002B 0024 0001".

Move to the branch destination according to the value returned.

Example



"00 or 04"
(Detection of DDC is not OK.) → Go to check item (3-10.4.).

"22 or 11"
(Detection of DDC is OK) → Go to check item (3-10.5.).

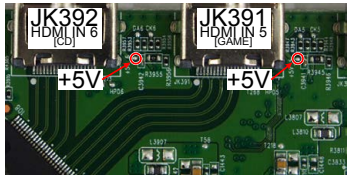
When the results of check item (3-10.1.) are "NO"
(Detection of 5V is not OK)

↓

Check the +5V voltage. (HDMI IN5, 6)

↓

Check item(3-10.3.). Check the +5V voltage.
Does the test point near HDMI input terminal [JK391/JK392] indicate 5V?



↓ YES

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

↓ NO

Check for a short circuit in the 5 V line and the 5 V Switch IC [IC392].
If there is no problem, the HDMI Switcher1 [IC391] or the 5 V Switch IC [IC392] is faulty
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

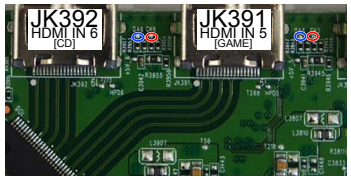
When the results of check item (3-10.2.) are "00 or 04"
(Detection of DDC is not OK.)

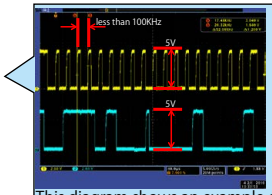
↓

Check the DDC line. (HDMI IN5, 6)

↓

Check item(3-10.4.). Check the DDC line :
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI input terminal [JK391/JK392]?





This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div

↓ YES

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

↓ NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

When the results of check item (3-10.2.) are "22 or 11"
(Detection of DDC is OK.)

↓

Checking the TMDS status register (HDMI Switcher1)

↓

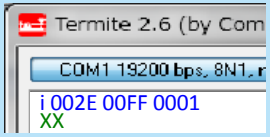
Check item(3-10.5.). Checking register of the TMDS CLK detection status register :
Send the following command from Termite.exe.

Send the command "i 002E 00FF 0001".

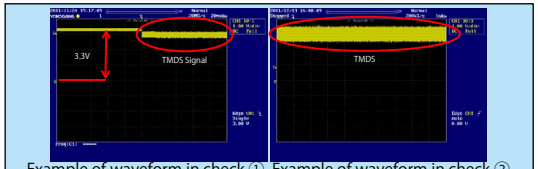
When the following value is returned, go to YES.
HDMI IN5 "A2", HDMI IN6 "91"

When the following value is returned, go to NO.
HDMI IN5 "A0", HDMI IN6 "90"

Example



NO →



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div

Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

Check item(3-10.7.). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?

HDMI IN5
80/81/83/84/86/87/89/90 pin

HDMI IN6
93/94/96/97/99/100/102/103 pin

YES ↓

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

NO ↓

Check for a short circuit in the pattern of the TMDS line of the HDMI Switcher1 [IC391] from the HDMI input terminal.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

↓ YES

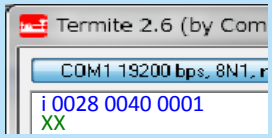
Checking the HPD/RXSENSE status register. (HDMI ZONE2 OUT)

↓

Check item(3-10.6.). Check the HPD and RXSENSE register value of the device.
Send the following command from Termite.exe.
Send the command "i 0028 0040 0001".

Check the value.
Move to the branch destination according to the value returned.

Example



If it is normal, "33" is returned.
The correct resistor value cannot be checked if the AVR and TV are not connected by HDMI.

"33 or 23 or 13 or 03"
(Detection of HPD is OK / Detection of RXSENSE is OK) → Go to check item (3-10.8.).

"31 or 21 or 11 or 01"
(Detection of HPD is OK / Detection of RXSENSE is not OK) → Go to check item (3-10.11.).

"32 or 22 or 12 or 02"
(Detection of HPD is not OK / Detection of RXSENSE is OK) → Go to check item (3-10.12.).

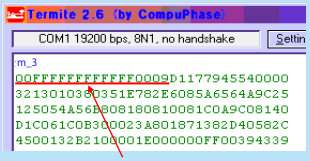
"30 or 20 or 10 or 00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK) → Go to check item (3-10.13.).

When the results of check item (3-10.6.) are "33 or 23 or 13 or 03"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Checking the EDID register. (HDMI ZONE2 OUT)

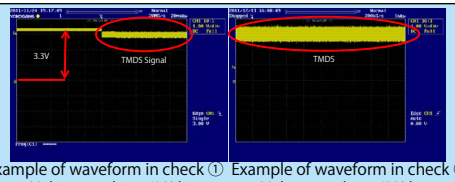
Check item(3-10.8.). Check the Monitor EDID :
① Unplug the AC cord. Plug the AC cord into a power outlet.
② Send the transmission command "m_3" from Termite.exe.
Are the first eight bytes of the returned value "00FFFFFFFFFFFF00"?

Example



The first eight bytes are normally "00FFFFFFFFFFFF00".
The correct resistor value cannot be checked if the AVR and TV are not connected by HDMI.

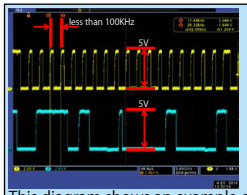
YES



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div

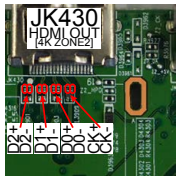
Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

NO

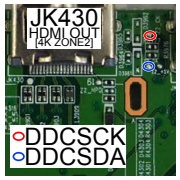


This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div

Check item(3-10.9.). Checking the TMDS :
Check the TMDS waveform at the following test point.



Check item(3-10.10.). Check the communication :
Do "DDCSCK" and "DDCSDA" indicate (5V) at the test point near HDMI output connector [JK430]?



YES

NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

YES

NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

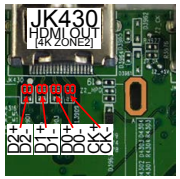
HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from check item (3.2.).
If it does not work, replace the PCB.

When the results of check item (3-10.6.) are "31 or 21 or 11 or 01"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the TMDS. (HDMI ZONE2 OUT)

Check item(3-10.11.). Checking the RXSENSE :
Does the test point near HDMI output terminal [JK430] indicate (3.3V)?



YES

NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

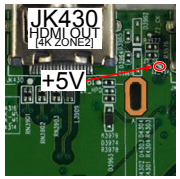
HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from check item (3.2.).
If it does not work, replace the PCB.

When the results of check item (3-10.6.) are "32 or 22 or 12 or 02"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (HDMI ZONE2 OUT)

Check item(3-10.12.). Checking the HPD :
Does the test point near HDMI output terminal [JK430] indicate Hi(3-5V)?



YES

NO

Check for a short circuit in the HPD line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from check item (3.2.).
If it does not work, replace the PCB.

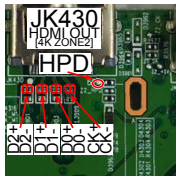
When the results of check item (3-10.6.) are "30 or 20 or 10 or 00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

↓

Check the TMDS/HPD. (HDMI ZONE2 OUT)

↓

Check item(3-10.13.). Checking the HPD and RXSENSE. :
Does the test point near HDMI output terminal [JK430] indicate (3.3V)?
Does the test point (HPD) near HDMI output terminal [JK430] indicate "Hi(3-5V)"?



YES ↓ NO

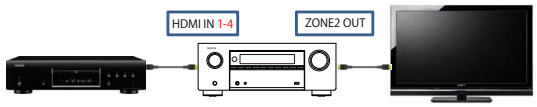
NO: Check for a short circuit in the TMDS/HPD line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

YES: HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

3-11. Switcher2 failure detection procedure



※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Next, turn on the power for the player and TV and start playback on the player.

↓

Checking the +5V/DDC status register (HDMI Switcher2)

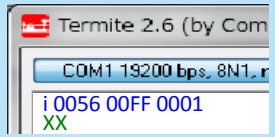
↓

Check item(3-11.1.). Checking the 5V status register :
Send the following command from Termite.exe.

Send the command "i 0056 00FF 0001".

Case of IN1
Is the return value "88 or 80" ?
(IN2 : "44 or 40", IN3 : "22 or 20", IN4 : "11 or 10")

Example



YES ↓

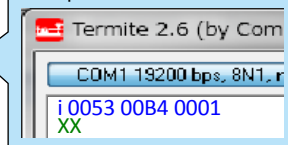
NO → Go to check item (3-11.3.).

Check item(3-11.2.). Checking the DDC status register :
Send the following command from Termite.exe.

Case of IN1
Send the command "i 0053 00B4 0001".
Case of IN2
Send the command "i 0053 0084 0001".
Case of IN3
Send the command "i 0053 0054 0001".
Case of IN4
Send the command "i 0053 0024 0001".

Move to the branch destination according to the value returned.

Example



"00 or 04"
(Detection of DDC is not OK.) → Go to check item (3-11.4.).

"22 or 11"
(Detection of DDC is OK) → Go to check item (3-11.5.).

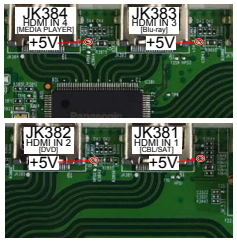
When the results of check item (3-11.1.) are "NO"
(Detection of 5V is not OK)

↓

Check the +5V voltage. (HDMI IN1 - 4)

↓

Check item(3-11.3.). Check the +5V voltage.
Does the test point near HDMI input terminal [JK381/JK382/JK383/JK384] indicate 5V?



↓ YES

HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

↓

Recheck from check item (3.3.).
If it does not work, replace the PCB.

↓ NO

Check for a short circuit in the 5V line and the 5V Switch IC [IC392].
If there is no problem, the HDMI Switcher2 [IC381] or the 5 V Switch IC [IC392] is faulty
Replace with a new device.

↓

Recheck from check item (3.3.).
If it does not work, replace the PCB.

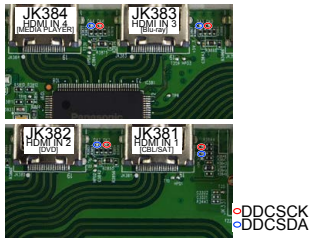
When the results of check item (3-11.2.) are "00 or 04"
(Detection of DDC is not OK.)

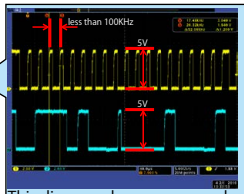
↓

Check the DDC line. (HDMI IN1 - 4)

↓

Check item(3-11.4.). Check the DDC line :
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI input terminal [JK381/JK382/JK383/JK384]?





This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div

↓ YES

HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

↓

Recheck from check item (3.3.).
If it does not work, replace the PCB.

↓ NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

↓

Recheck from check item (3.3.).
If it does not work, replace the PCB.

When the results of check item (3-11.2.) are "22 or 11"
(Detection of DDC is OK.)

Checking the TMDS status register (HDMI Switcher2)

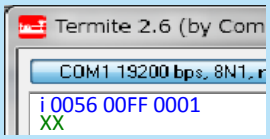
Check item(3-11.5.). Checking register of the TMDS CLK detection status register :

Send the following command from Termite.exe.
Send the command "i 0056 00FF 0001".

When the following value is returned, go to YES.
HDMI IN1 "88", HDMI IN2 "44", HDMI IN3 "22", HDMI IN4 "11"

When the following value is returned, go to NO.
HDMI IN1 "80", HDMI IN2 "40", HDMI IN3 "20", HDMI IN4 "10"

Example



NO

YES

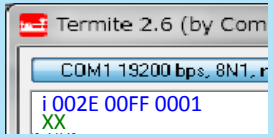
Checking the TMDS status register (HDMI Switcher2 -> HDMI Switcher1)

Check item(3-11.7.). Check the TMDS CLK detection status of the register.

Send the following command from Termite.exe.
Send the command "i 002E 00FF 0001".

Is the return value "88" ?

Example :



If it is normal, "88" is returned.

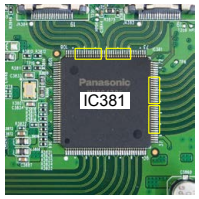
NO

YES

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from check item (3.3.).
If it does not work, replace the PCB.

Check item(3-11.6.). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?

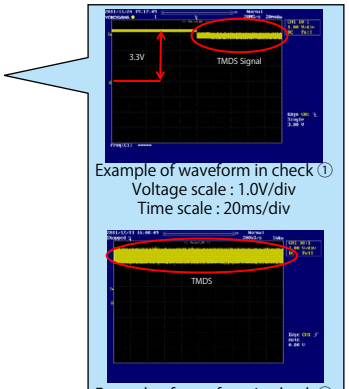


HDMI IN1
42/43/45/46/48/49/51/52 pin

HDMI IN2
55/56/58/59/61/62/64/65 pin

HDMI IN3
80/81/83/84/86/87/89/90 pin

HDMI IN4
93/94/96/97/99/100/ 102/103 pin



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div

Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

YES

HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

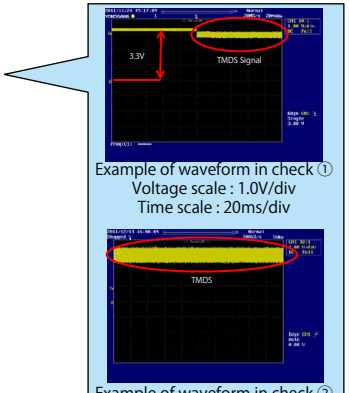
NO

Check for a short circuit in the pattern of the TMDS line of the HDMI Switcher2 [IC381] from the HDMI input terminal.
If there is no problem, the HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

Recheck from check item (3.3.).
If it does not work, replace the PCB.

Check item(3-11.8.). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?

42/43/45/46/48/49/51/52 pin



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div

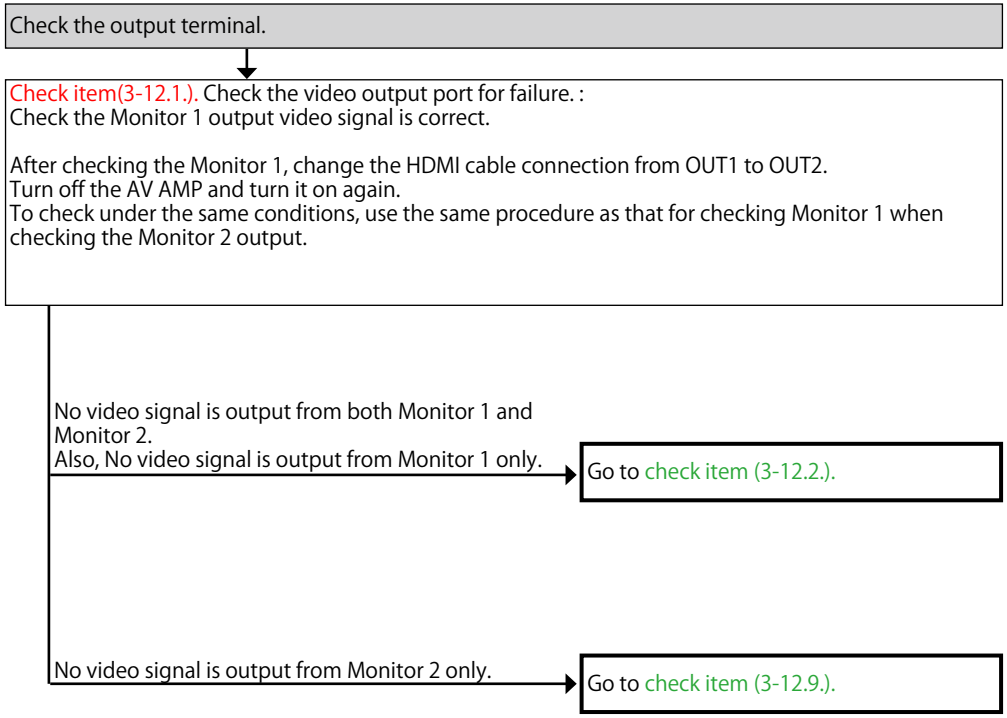
Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

YES

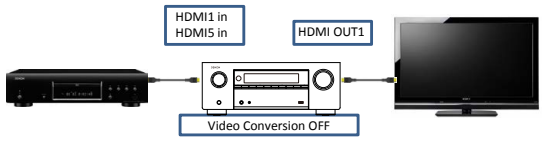
NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

3-12. Tx failure detection procedure



Checking operation between the HDMI (SW) device and the HDMI device (Tx).
Checking operation between the HDMI (Tx) device and TV.



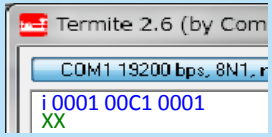
Checking the TMDS status register (Switcher1/2 -> HDMI Tx)

Check item(3-12.2.). Check the TMDS CLK detection status of the register.
Send the following command from Termite.exe.

Case of IN1
Send the command "i 0001 00C1 0001".
Case of IN5
Send the command "i 0001 00C0 0001".

When the following value is returned, go to YES.
"Other than 11"
When the following value is returned, go to NO.
"11"

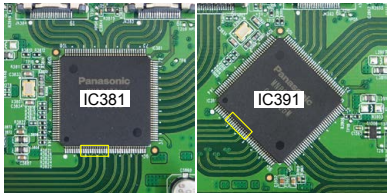
Example



YES → The first operation : Checking between Monitor 1 and the TV.
Go to check item (3-12.1.).

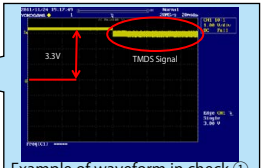
NO

Check item(3-12.3.). Checking the TMDS input. :
TMDS waveform at the following points.

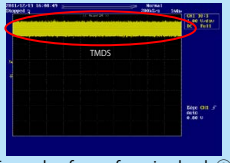


HDMI IN1
IC381
22/24/25/27/28/30/31/33 pin

HDMI IN5
IC391
8/10/11/13/14/16/17/19 pin



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div



Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

NO → HDMI Tx [IC431] is faulty.
Replace with a new device.

YES → Recheck from check item (3.4.).
If it does not work, replace the PCB.

NO → Case of HDMI IN1
HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

Case of HDMI IN5
HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Checking between Monitor1 and the TV.
Connect Monitor1 to the TV and check the following items with the TV turned on.

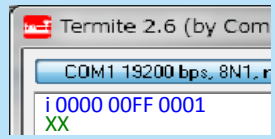
Checking the HPD status register (HDMI Tx -> Monitor)

Check item(3-12.4.). Check the HPD register value of the HDMI TX device. :
Send the following command from Termite.exe.

Send the command "i 0000 00FF 0001".

Move to the branch destination according to the value returned.

Example



"62"
(Detection of HPD is OK) → Go to check item (3-12.5.).

"60"
(Detection of HPD is not OK.) → Go to check item (3-12.8.).

When the results of check item (3-12.4.) are "62"
(Detection of HPD is OK)

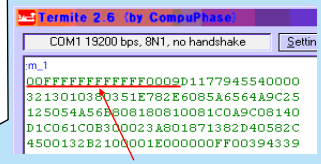
↓

Checking the EDID register. (HDMI OUT1)

↓

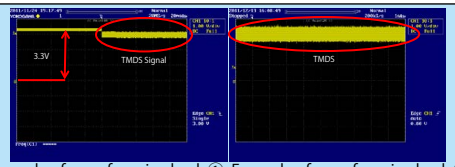
Check item(3-12.5.). Check the Monitor EDID :
① Unplug the AC cord. Plug the AC cord into a power outlet.
② Send the transmission command "m_1" from Termite.exe.
Are the first eight bytes of the returned value "00FFFFFFFFFFFF00"?

Example



The first eight bytes are normally "00FFFFFFFFFFFF00".
The correct resistor value cannot be checked if the AVR and TV are not connected by HDMI.

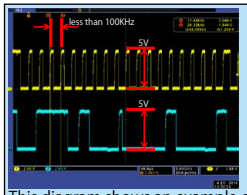
YES



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div

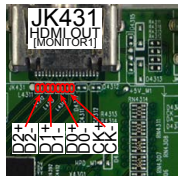
Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

NO

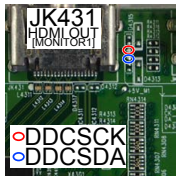


This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div

Check item(3-12.6.). Checking the TMDS :
Check the TMDS waveform at the following test point.



Check item(3-12.7.). Check the communication :
Are the waveforms for "CKL" and "DATA" at the test point near the HDMI output connector [JK431] correct (as shown in the figure)?



YES

NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

YES

NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (3.4.).
If it does not work, replace the PCB.

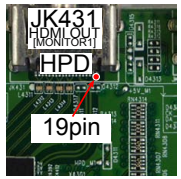
When the results of check item (3-12.4.) are "60"
(Detection of HPD is not OK.)

↓

Check the HPD. (HDMI OUT1)

↓

Check item(3-12.8.). Checking the HPD :
Is "Hi(3-5V)" indicated for "19pin"(HPD) in the HDMI output terminal [JK431]?



YES ↓ NO

NO → Check for a short circuit in the HPD line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

YES → HDMI Tx [IC431] is faulty.
Replace with a new device.

↓

Recheck from check item (3.4.).
If it does not work, replace the PCB.

Checking between Monitor 2 and the TV.
Connect Monitor2 to the TV and check the following items with the TV turned on.

↓

Checking the HPD status register (HDMI OUT2)

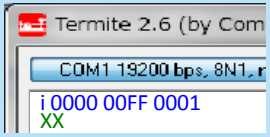
↓

Check item(3-12.9.). Check the HPD register value of the HDMI TX device. :
Send the following command from Termite.exe.

Send the command "i 0000 00FF 0001".

Move to the branch destination according to the value returned.

Example



"61"
(Detection of HPD is OK)

→ Go to check item (3-12.10.).

"60"
(Detection of HPD is not OK.)

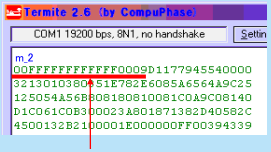
→ Go to check item (3-12.13.).

When the results of check item (3-12.9.) are "61"
(Detection of HPD is OK)

Checking the EDID register. (OUT2)

Check item(3-12.10.). Check the Monitor EDID :
① Unplug the AC cord. Plug the AC cord into a power outlet.
② Send the transmission command "m_2" from Termite.exe.
Are the first eight bytes of the returned value "00FFFFFFFFFFFF00"?

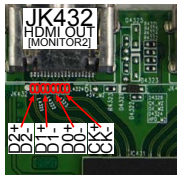
Example



The first eight bytes are normally "00FFFFFFFFFFFF00".
*If the AVR and the TV are not connected via HDMI, the correct register value cannot be verified.

YES

Check item(3-12.11.). Checking the TMDS :
Check the TMDS waveform at the following test point.



YES

HDMI Tx [IC431] is faulty.
Replace with a new device.

NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

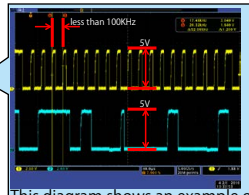
NO

Check item(3-12.12.). Check communication with the monitor :
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI output terminal [JK432]?

YES

HDMI Tx [IC431] is faulty.
Replace with a new device.

NO



This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div

Recheck from check item (3.4.).
If it does not work, replace the PCB.

When the results of check item (3-12.9.) are "60"
(Detection of HPD is not OK.)

↓

Check the HPD. (OUT2)

↓

Check item(3-12.13.). Checking the HPD :
Does the voltage of HPD test point close to the HDMI output terminal [JK432] indicate Hi (3-5V)?

YES ↓ NO

NO:
Check for a short circuit in the HPD line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

YES:
HDMI Tx [IC431] is faulty.
Replace with a new device.

↓

Recheck from check item (3.4.).
If it does not work, replace the PCB.

3-13. HDMI IN7 failure detection procedure

Checking operation between the HDMI IN7 and the player

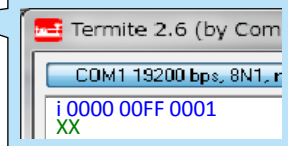
※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Check the sound output while turning on the player.

Checking the +5V/DDC status register

Check item(3-13.1.). Checking the 5V status register :
Send the following command from Termite.exe.
Send the command "i 0000 00FF 0001".

Check the value.
Move to the branch destination according to the value returned.

Example



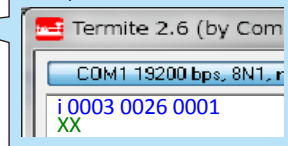
"61"
(Detection of 5V is not OK.)
→ Go to check item (3-13.4.)

"71"
(Detection of 5V is OK)

Check item(3-13.2.). Checking the status register :
Send the following command from Termite.exe.
Send the command "i 0003 0026 0001".

Check the value.
Move to the branch destination according to the value returned.

Example



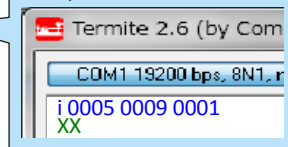
"0E"
(Detection of DDC is OK)
→ Go to check item (3-13.6.)

"Other than 0E"
(Detection of DDC is not OK.)

Check item(3-13.3.). Checking the status register :
Send the following command from Termite.exe.
Send the command "i 0005 0009 0001".

Check the value.
Move to the branch destination according to the value returned.

Example



"Other than 03"
(Detection of DDC is not OK.)
→ Go to check item (3-13.5.)

"03"
(Detection of DDC is OK)
→ Go to check item (3-13.6.)

When the results of check item (3-13.1.) are "61"
(Detection of 5V is not OK.)

Check the +5V voltage. (HDMI IN7)

Check item(3-13.4.). Check the +5V voltage.
Does the HDMI Tx [IC431] test point indicate (5V)?
Test points near the [JK393] are as follows.

NO

Check for a short circuit in the 5V line and check the [JK393].
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

YES

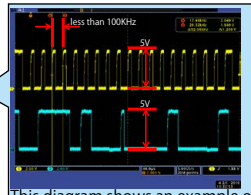
HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (3.4.).
If it does not work, replace the PCB.

When the results of check item (3-13.3.) are "Other than 03"
(Detection of DDC is not OK.)

Check the DDC Line. (HDMI IN7)

Check item(3-13.5.). Check the DDC line :
Are the "DDCSCK" and "DDCSDA" waveforms for the HDMI Tx [IC431] signal correct (as shown in the figure)?
Test points near the [JK393] are as follows.



This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div

NO

Check for a short circuit in the DDC line and check the [JK393].
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

YES

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (3.4.).
If it does not work, replace the PCB.

When the results of check item (3-13.2.) are "22"
When the results of check item (3-13.3.) are "03"
(Detection of DDC is OK)

↓

Checking the TMDS status register (HDMI IN7)

↓

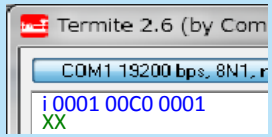
Check item(3-13.6.). Check the TMDS CLK detection status of the register.

Send the following command from Termite.exe.
Send the command "i 0001 00C0 0001".

When the following value is returned, go to YES.
"Other than 11"

When the following value is returned, go to NO.
"11"

Example

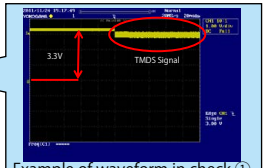


NO →

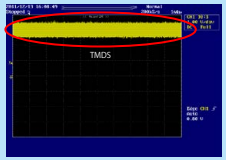
YES ↓

Check item(3-13.7.). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?

JK393
1/3/4/6/7/9/10/12 pin



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div



Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

YES ↓

HDMI Tx [IC431] is faulty.
Replace with a new device.

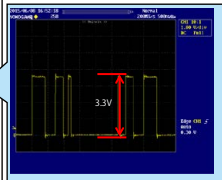
NO ↓

Check for a short circuit in the TMDS line and check the [JK393].
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

↓

Recheck from check item (3.4.).
If it does not work, replace the PCB.

Check item(3-13.8.). Check the AUDIO signal output :
Check the AUDIO signal waveform at the following test point.
Is the waveform like the sample?
(MCK/64FS/FS/I2S0/I2S1/I2S2/I2S3)



The diagram shows an example of the wave-form of I2S0.
Waveform check points
- Crest value (3.3 V normally)
- Signal change
Check the waveform of each pin.
Voltage scale : 1.0V/div
Time scale : 500us/div

YES ↓

The DIGITAL AUDIO block is faulty.
Check the DIGITAL AUDIO device.
Check "AUDIO" in troubleshooting.
If it does not work, replace the PCB.

NO ↓

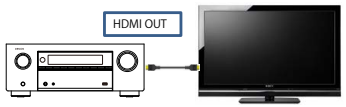
HDMI TX[IC431 or IC433] is faulty.
Replace with a new device.

↓

Recheck from check item (3.4.).
If it does not work, replace the PCB.

3-14. GUI and PLD failure detection procedure

Check item(3-14.1.). Does a video signal come from HDMI OUT to TV correctly? :



Turn Video Conversion "**ON**" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = On)
When the "**SETUP**" button on a remote control is pressed, is "**MENU**" displayed on TV which is connected to the HDMI output terminal on the AVR?

NO → Go to check item (3-14.2.).

YES → Go to check item (3-14.5.).

When the results of check item (3-14.1.) are "NO"
(When the menu display is not OK)

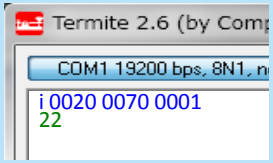
Check the Video signal line. (GUI -> HDMI Tx)

Check item(3-14.2.). Check the format of the resistor video signal :
Send the following command from Termite.exe.
Send the command "i 00ED 0044 0001".

When the following value is returned, go to YES.
"Other than 00"

When the following value is returned, go to NO.
"00"

Example

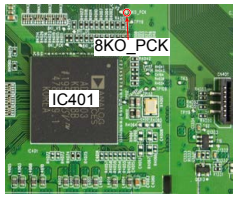


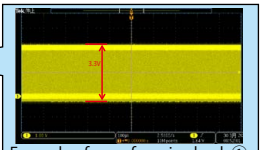
NO → Check the Video signal line. (GUI -> PLD)

YES → HDMI Tx [IC431] is faulty.
Replace with a new device.

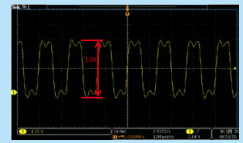
Recheck from check item (3.5.).
If it does not work, replace the PCB.

Check item(3-14.3.). Check the PLD video signal line from the GUI :
Check the video signal waveform at the following test point.
Is the waveform like the sample?





Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 100ms/div



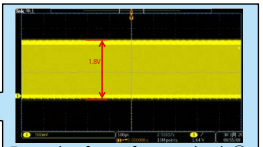
Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 10ns/div

NO → Check the peripheral pattern between the GUI [IC401] and PLD [IC421].
If there is no problem, the GUI [IC401] is faulty.
Replace with a new device.

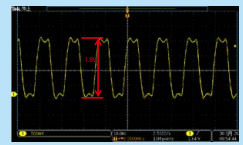
Recheck from check item (3.5.).
If it does not work, replace the PCB.

Check the Video signal line. (PLD -> HDMI Tx)

Check item(3-14.4.). Check the HDMI Tx video signal line from the PLD :
Check the video signal waveform at the following test point.
Is the waveform like the sample?



Example of waveform in check ①
Voltage scale : 500mV/div
Time scale : 100us/div



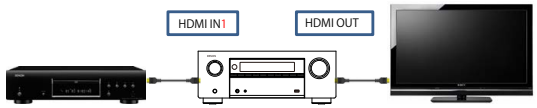
Example of waveform in check ②
Voltage scale : 500mV/div
Time scale : 10ns/div

YES → HDMI Tx [IC431] is faulty.
Replace with a new device.

NO → Check the peripheral pattern between the PLD [IC421] and HDMI Tx [IC431].
If there is no problem, the PLD [IC421] is faulty.
Replace with a new device.

Recheck from check item (3.5.).
If it does not work, replace the PCB.

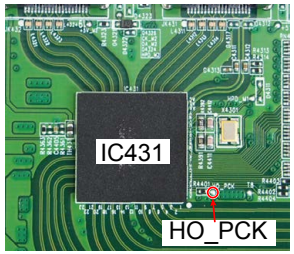
When the results of check item (3-14.1.) are "YES"
(When the menu display is OK)

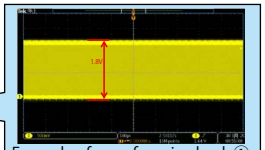


Turn Video Conversion "**ON**" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = On)
In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Next, turn on the power for the player and TV and start playback on the player.

Check the Video signal line. (HDMI Tx -> PLD)

Check item(3-14.5.). Check the PLD video signal line from the HDMI Tx :
Check the video signal waveform at the following test point.
Is the waveform like the sample?




Example of waveform in check ①
Voltage scale : 500mV/div
Time scale : 100us/div

Example of waveform in check ②
Voltage scale : 500mV/div
Time scale : 10ns/div

YES

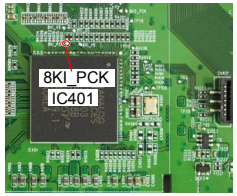
NO

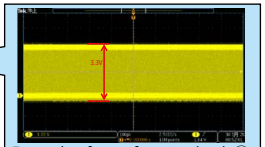
Check the peripheral pattern between the HDMI Tx [IC431] and PLD [IC421].
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

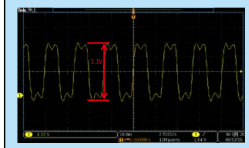
Recheck from check item (3.5.).
If it does not work, replace the PCB.

Check the Video signal line. (PLD -> GUI)

Check item(3-14.6.). Check the GUI video signal line from the PLD :
Check the video signal waveform at the following test point.
Is the waveform like the sample?




Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 100ms/div


Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 10ns/div

YES

NO

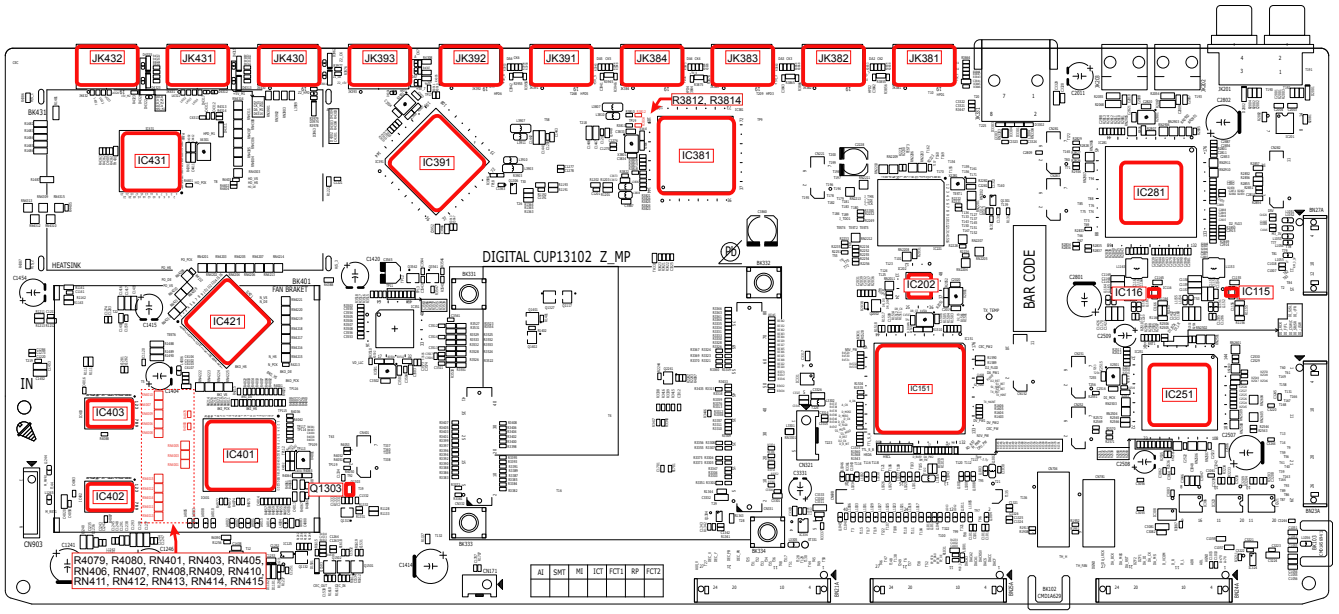
GUI [IC401] is faulty.
Replace with a new device.

Check the peripheral pattern between the PLD [IC421] and GUI [IC401].
If there is no problem, the PLD [IC421] is faulty.
Replace with a new device.

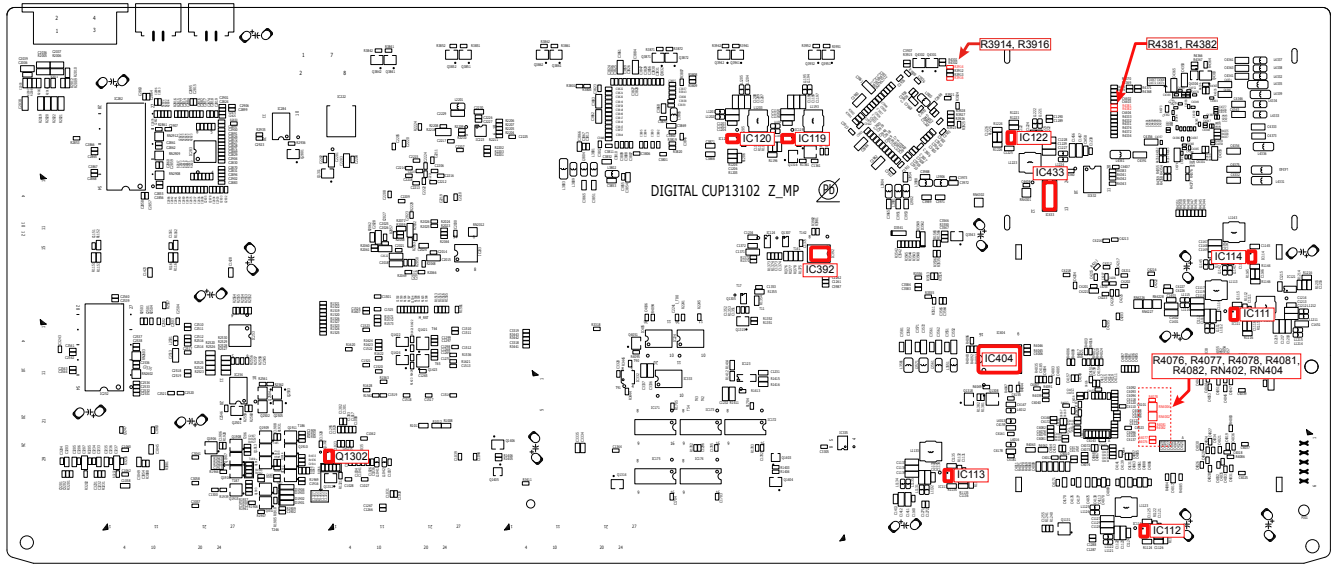
Recheck from check item (3.5.).
If it does not work, replace the PCB.

4. Device implementation location

DIGITAL (A SIDE)

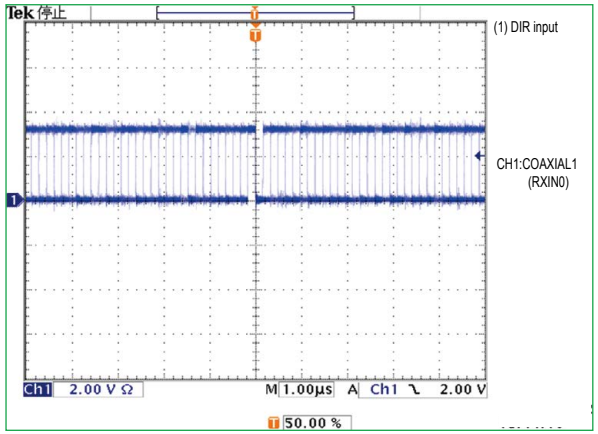


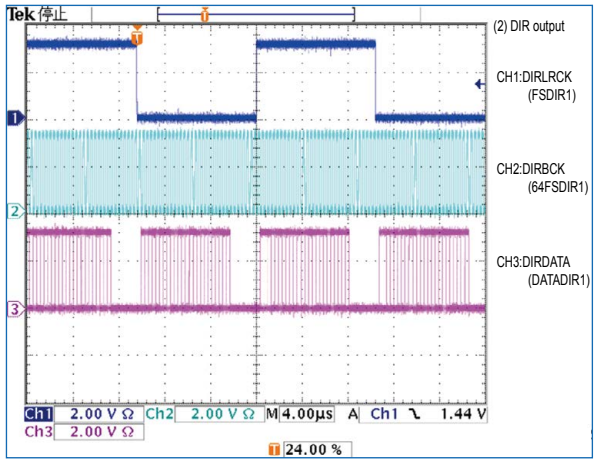
DIGITAL (B SIDE)

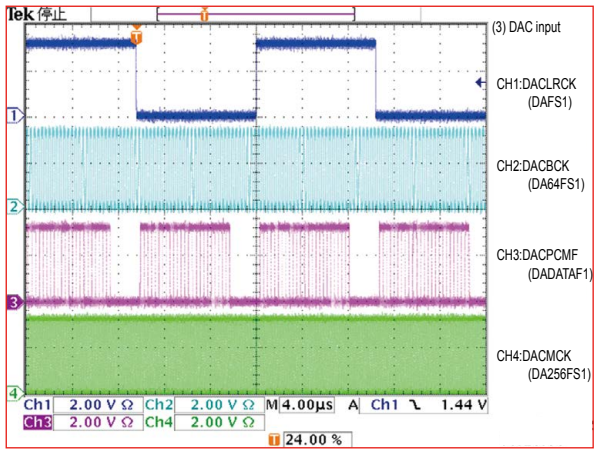


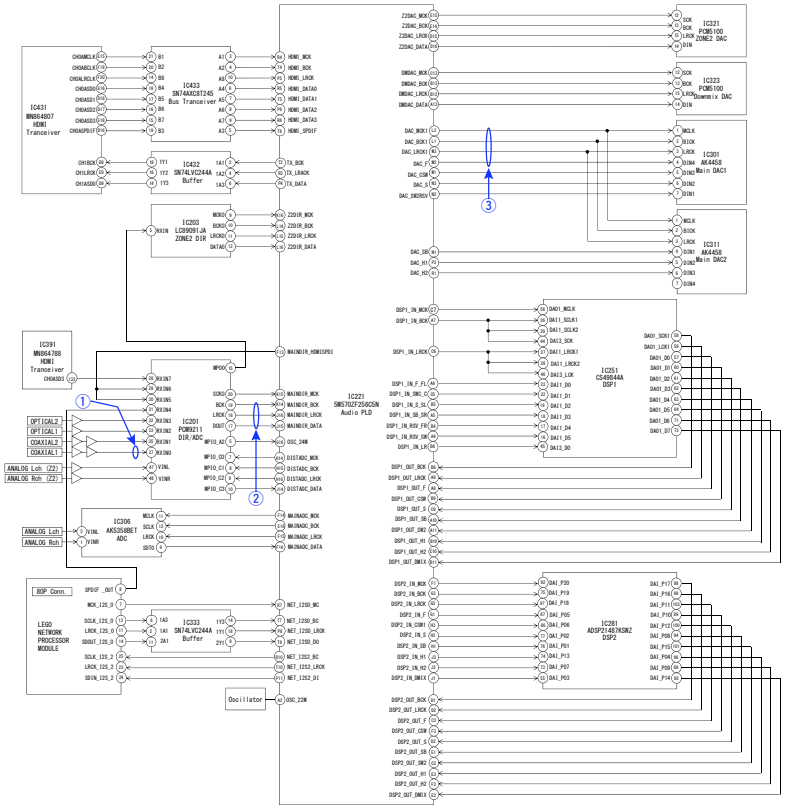
CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

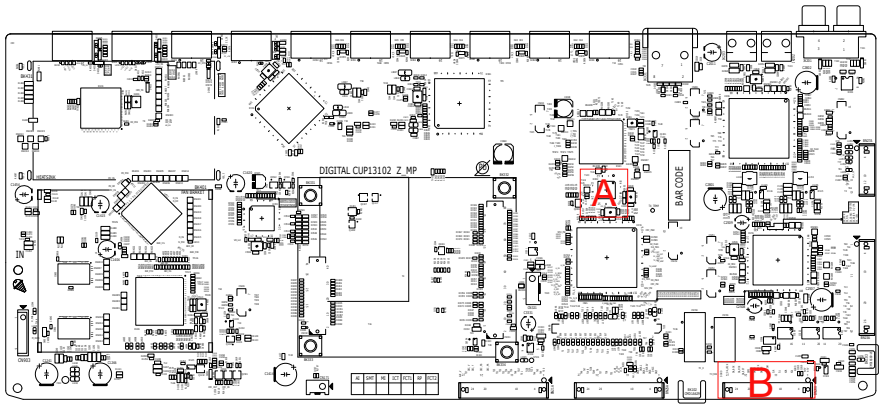
WAVE FORM

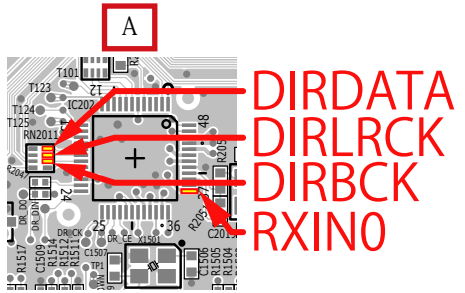


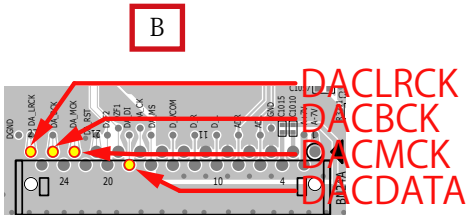












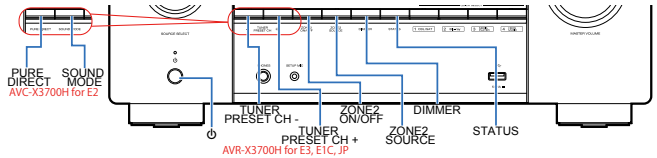
SPECIAL MODE

Special mode setting button

※ No. 1 - 4, 6 - 8 : While holding down buttons "**A**", "**B**" and "**C**" simultaneously, press the power button to turn on the power.
※ No. 5, 9, 10 : While the power is on, hold down buttons "**A**", "**B**", and "**C**" for at least 3 seconds .

No.	Mode		Button A	Button B	Button C	Descriptions
1	Version Display Mode (MCU / DSP Error Display)		DIMMER	STATUS	-	Displays the version of firmware such as the MCU or DSP. Errors that have occurred are displayed. (See 1. Version Display Mode)
2	PANEL / REMOTE LOCK Selection Mode	E3, E1C	TUNER PRESET CH +	ZONE2 SOURCE	-	Activates the unit in PANEL/REMOTE LOCK selection mode to enable PANEL LOCK and Remote Lock On/Off to be set. (See 2. PANEL / REMOTE LOCK Selection Mode)
		E2	SOUND MODE			
3	Selecting the Mode for Service-related		ZONE2 SOURCE	DIMMER	STATUS	A selection mode for entering service-related modes. Service-related modes : No. 3-1 - No. 3-6 (See 3-1. Selecting the Mode for Service-related)
3-1	Check the Video/Audio path Mode		↑	↑	↑	This is a special mode for service confirmation used during repair work to simplify the confirmation work for the Audio channel / video channel. (See Service Path Check Mode)
3-2	Protection history display mode		↑	↑	↑	Displays the latest occurred protection history. (See 3-2. Protection History Display Mode)
3-3	232C Standby Clear Mode		↑	↑	↑	Switches from 232C standby mode to normal standby mode. (See 3-3. 232C Standby Clear Mode)
3-4	Operation Info Mode		↑	↑	↑	Displays the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See 3-4. Operation Info Mode)
3-5	TUNER STEP Mode (E3 model only)		↑	↑	↑	Enables the FM/AM tuner reception frequency step to be changed. (See 3-5. TUNER STEP mode (E3 only))
3-6	Remote ID Setup Mode		↑	↑	↑	If there are multiple DENON AV receivers in the same area, this mode prevents other AV receivers from being operated concurrently with this device. (See 3-6. Remote ID Setup Mode)
4	Protection Pass Mode	E3, E1C	TUNER PRESET CH +	ZONE2 SOURCE	STATUS	Enables the power to be turned on when protection detection is disabled. (See 4. Protection Pass Mode)
		E2	SOUND MODE			
5	Network Initialization Mode	E3, E1C	TUNER PRESET CH +	ZONE2 ON/OFF	-	Network module backup data is initialized. (See 5. Network Initialization Mode)
		E2	SOUND MODE			
6	User Initialization Mode	E3, E1C	TUNER PRESET CH -	TUNER PRESET CH +	-	Initialize the backup data for the MCU and network module. (Settings for the Installer Setup are not initialized.)
		E2	PURE DIRECT	SOUND MODE		
7	Factory Initialization Mode		ZONE2 SOURCE	DIMMER	-	Initialize the backup data only for MCU. (Settings for the Installer Setup are initialized) (Network function settings are not initialized.) (See POST-SERVICE PRECAUTIONS)
8	Clearing of Operation Info		ZONE2 SOURCE	STATUS	-	Clear the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See 6. Clearing of Operation Info)
9	HDMI Diagnostics Mode	E3, E1C	TUNER PRESET CH -	ZONE2 SOURCE	-	This mode is used to identify and solve the cause when there is a connectivity issue with this unit and an HDMI device. For details on the operating methods and diagnosis procedures, see the HDMI Diagnostics and Troubleshooting guide issued on SDI.
		E2	PURE DIRECT			
10	Log Capture feature	E3, E1C	TUNER PRESET CH +	ZONE2 SOURCE	STATUS	Acquires the Network Module log. As the Network Module reboots, the log is deleted. Make sure to obtain the log before turning off the unit's power. (See 7. Log Capture feature)
		E2	SOUND MODE			

NOTE : If the volume indicator displays " -88.8 ", the unit has entered the developer's special mode. In this case, the RS-232C communication is not available.
AVR-X3700H for E3, E1C To release this special mode, press and hold the "**TUNER PRESET CH +**" and "**ZONE2 SOURCE**" buttons for 3 seconds or more while the power is ON. When the volume indicator returns to the normal display, the RS-232C communication is available.
AVC-X3700H for E2 To release this special mode, press and hold the "**SOUND MODE**" and "**ZONE2 SOURCE**" buttons for 3 seconds or more while the power is ON. When the volume indicator returns to the normal display, the RS-232C communication is available.



1. Version Display Mode

1.1. Actions

Version information is displayed when the device is started in this mode.

1.2. Starting up

While holding down buttons "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.
then press the "**STATUS**" button to display the information in section 1.3 on the display.
※ The version list is also displayed on GUI while the version is displayed on the display.

1.3. Display Order

Error information(See "1.4. Error display") → ① Model destination information → ② Serial Number → ③ Firmware Package → ④ MCU → ⑤ MCU 1st Boot Loader → ⑥ DSP1/2 ROM → ⑦ Audio PLD → ⑧ Video PLD → ⑨ GUI SFLASH → ⑩ HEOS Version → ⑪ HEOS Build → ⑫ HEOS Module → ⑬ HEOS Configuration → ⑭ HEOS Locale → ⑮ Restore Version → ⑯ Ether Mac Address → ⑰ WiFi Mac Address → ⑱ BT Mac Address → ⑲ Audyssey App Interface Version

①Model destination information :

```
AVR-@@@@@@ \\\
```

@ : Model name (X3700H)
\ : Region (E3, E2, E1C)

②Serial Number :

```
SN:%%**********
```

③Firmware Package :

```
Package\    :****
```

⚠2 \ : PCB (Non=OLD DIGITAL, *=NEW DIGITAL)

④MCU :

```
M:**************
```

⑤MCU 1st Boot Loader :

```
Main FBL :**.**
```

⑥DSP1/2 ROM :

```
DSP1        :**.**
DSP2        :**.**
```

⑦Audio PLD :

```
A.PLD :********
```

⑧Video PLD :

```
V.PLD :********
```

⑨GUI SFLASH :

```
GUI    :@@$\****
```

@ : Model code
$: Brand code (Non=0, De=1, Mz=2, Mc=3)
\ : Region code (E3=1, E2=2, E1C=5, JP=4, ALL=0)
* : version

⑩HEOS Version :

```
HEOS Version
```

↓"Press "**STATUS**" button.

```
*.***.***
```

⑪HEOS Build :

```
HEOS Build
```

↓"Press "**STATUS**" button.

```
******
```

⑫HEOS Module :

```
HEOS Module
```

↓"Press "**STATUS**" button.

```
***
```

⑬HEOS Configuration :

```
HEOS Config
```

↓"Press "**STATUS**" button.

```
Development
Production
```

⑭HEOS Locale :

```
HEOS Locale
```

↓"Press "**STATUS**" button.

```
*****
```

⑮Restore Version :

```
RSTR
```

↓"Press "**STATUS**" button.

```
************
```

⑯Ether Mac Address :

```
*Ether MAC
```

↓"Press "**STATUS**" button.

```
******-******
```

⑰WiFi Mac Address :

```
*Wi-Fi MAC
```

↓"Press "**STATUS**" button.

```
******-******
```

⑱BT Mac Address :

```
*BT MAC Address
```

↓"Press "**STATUS**" button.

```
******-******
```

⑲Audyssey App Interface Version :

```
Audy IFVer:**.**
```

1.4. Error display

See the table below for descriptions of the displayed errors and countermeasures for these.
If multiple errors occur, only one item is displayed.
The priority order is ②, ③, ④, ⑤, ⑥, ①.

Condition	States	Display	TROUBLE SHOOTING
① Firm Check Error	The model name, brand name and region information written in the firmware are compared to the region settings in the PCB. This error is displayed if the information does not match. " ▲ " is not displayed if firmware information is correct.	FIRM ERROR ▲M:********** ▲Main FBL :**.** ▲DSP# :**.** ▲A.PLD :******** ▲V.PLD :******** ▲GUI :********	•Check the resistor for setting the region [R1590, R1589, DIGITAL PCB]. •Write the firmware for the correct region.
② IP SCALER Error	An error occurs in Loop back Test of the DDR memory which is performed during the initial setting of i/p Scaler(ADV8003).	IP SCALER ERR 01	•Check the circuits around the IP SCALER [IC401, DIGITAL PCB] and DDR2 [IC402/IC403]. If there appear to be no problems, [IC401] or [IC402/IC403] is faulty.
	During the initial setting of i/p Scaler (ADV8003) , there is not the reply of the Loop back Test result of the DDR memory .	IP SCALER ERR 02	
③ GUI Serial Flash Error	If the MCU version is not supported by the GUI Serial Flash (ADV8003), " ▼ " is displayed as the first character of the GUI firmware version. If GUI Serial Flash is damaged, " ▲ " is displayed as the first character.	GUI VER. ERROR ▼GUI :******** ▲GUI :********	•Check the firmware version.
④ DIR Error	This error is displayed if there is no response from the DIR.	DIR ERROR 01	•Check the DIR [IC202, DIGITAL PCB] and surrounding circuits.

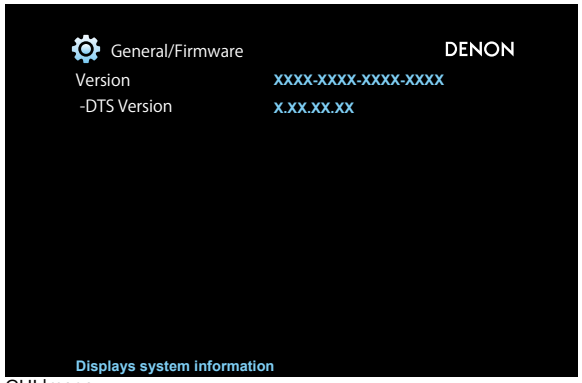
Condition	States	Display	TROUBLE SHOOTING
⑤ -1 DSP1 NG	Boot error 1 (After reset the DSP, DSP_Flag0 port is "**Low**")	DSP1 ERROR 01	•Check the DSP1 [IC251, DIGITAL PCB] and surrounding circuits.
	Boot Error 2 (After reset the DSP, MCU received state error command)	DSP1 ERROR 02	
	Signal Detect Error (No response after input set for 1sec)	DSP1 ERROR 03	
	Mode Change Error (No response after mode change for 1sec)	DSP1 ERROR 04	
	Invalid situation (Detecting invalid situation with autodetect)	DSP1 ERROR 05	
	Busy Error ("**Busy**" port remains "**Low**" for 1sec)	DSP1 ERROR 06	
	Output Fs Error (Fs status between MCU output and actual DSP is different)	DSP1 ERROR 07	
	Input Fs Error (Fs status between AutoDetect Msg and ACCN Msg is different)	DSP1 ERROR 08	
	SPI communication error	DSP1 ERROR 09	
⑤ -2 DSP2 NG	Boot error 1 (After reset the DSP, DSP_Flag0 port is "**Low**")	DSP2 ERROR 01	•Check the DSP2 [IC281, DIGITAL PCB] and surrounding circuits.
	Boot error 2 (After reset the DSP, DSP initialization is not completed)	DSP2 ERROR 02	
	(Unused)	DSP2 ERROR 03	
	Command error 1 (After sending the command to the DSP, DSP_Flag0 port is "**LOW**".)	DSP2 ERROR 04	
	Command error 2 (After sending the command to the DSP, MCU received "**COMMAND ERROR**".)	DSP2 ERROR 05	
	Command error 3 (After sending the command to the DSP, MCU did not receive "**COMMAND SUCCESS**".)	DSP2 ERROR 06	
	IDL error 1 (Before receiving IDL, "**COMMAND BYTE**" is not cleared.)	DSP2 ERROR 07	
	IDL error 2 (MCU received "**IDL SERIOUS ERROR**".)	DSP2 ERROR 08	
	SPI communication error	DSP2 ERROR 09	
⑥ BACKUP Error	Error occurred in BACKUP. it is an error of the check sum.	BACKUP ERROR	

1.5. Version Display in the Setup Menu

Follow the steps below to display the firmware information.

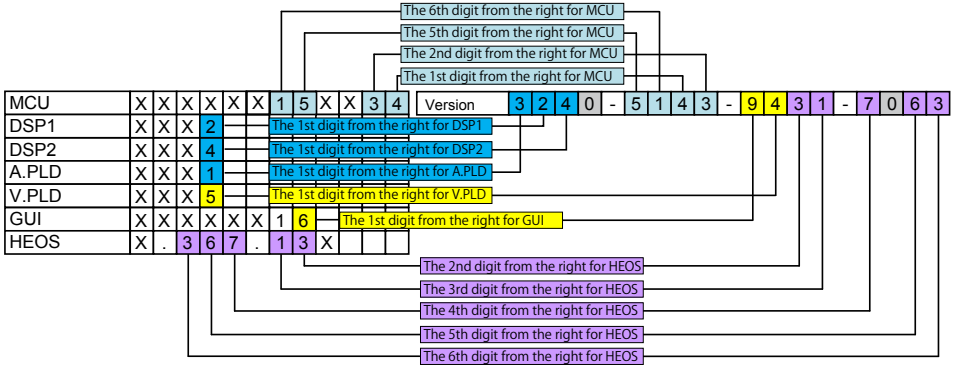
(1) Press the "**SETUP**" button on the remote control.
(2) Select "**General** - **Information** - **Firmware**".

The version information is displayed as a 16-digit number as shown in the screenshot below.



GUI Image

This 16-digit number comprises a part of the version number of each device and module.
Numerics and version numbers correspond as shown below.



※ The firmware version numbers and this 16-digit version information are written in the Service Information.
※ Replace as follows for the 5th to 7th digits of HEOS version.

X.XXX.X → X.XXX.00X
X.XXX.XX → X.XXX.0XX
X.XXX.XXX → X.XXX.XXX

2. PANEL / REMOTE LOCK Selection Mode

2.1. Actions

Switch the PANEL LOCK and REMOTE LOCK modes between on and off.

- PANEL LOCK Mode (with Volume)
  Disables reception from all keys and encoders on the front panel except the power button (including the volume).
- PANEL LOCK Mode (without Volume)
  Disables reception from all keys and encoders on the front panel except the power button and volume encoder.
- PANEL LOCK mode is turned off

2.2. Starting up

AVR-X3700H for E3, E1C

While holding down buttons "**TUNER PRESET CH +**" and "**ZONE2 SOURCE**" simultaneously, press the power button to turn on the power.
Select the desired mode using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button to confirm.

AVC-X3700H for E2

While holding down buttons "**SOUND MODE**" and "**ZONE2 SOURCE**" simultaneously, press the power button to turn on the power.
Select the desired mode using the "**SOUND MODE / PURE DIRECT**" button, then press the "**STATUS**" button to confirm.

2.3. Displaying and Selecting Each Mode

AVR-X3700H for E3, E1C

The information shown on the display switches each time the "**TUNER PRESET CH +**" button is pressed.

AVC-X3700H for E2

The information shown on the display switches each time the "**SOUND MODE**" button is pressed.

Press the "**STATUS**" button to set the currently displayed mode and restart the device.
The setting with "*" is selected for each mode.

①

```
FP/VOL LOCK On
```

The buttons on the unit and the master volume knob does not function.

↓

②

```
FP LOCK    On
```

The buttons on the unit does not function.

↓

③

```
FP LOCK    *Off
```

The PANEL LOCK mode is turned off.

↓

④

```
RC LOCK    On
```

The device cannot be operated by the remote control.

↓

⑤

```
RC LOCK    *Off
```

The REMOTE LOCK mode is turned off.

3-1. Selecting the Mode for Service-related

3-1.1. Actions

Select diagnostic mode (service path check mode), protection history display mode, 232C standby clear mode, Operation Info mode, TUNER STEP mode or Remote ID Setup Mode.

3-1.2. Starting up

While holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-X3700H for E3, E1C

Select the desired mode using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button to confirm.

AVC-X3700H for E2

Select the desired mode using the "**SOUND MODE / PURE DIRECT**" button, then press the "**STATUS**" button to confirm.

3-1.3. Displaying and Selecting Each Mode

AVR-X3700H for E3, E1C

The information shown on the display switches each time the "**TUNER PRESET CH +**" button is pressed.

AVC-X3700H for E2

The information shown on the display switches each time the "**SOUND MODE**" button is pressed.

Press the "**STATUS**" button to set the currently displayed mode and restart the device.

①

```
1.SERVICE CHECK
```

Service Path Check Mode：See "DIAGNOSTIC PATH DIAGRAM"
The Video and Audio paths can be checked.
This function is convenient for confirming problem paths in the product and checking the paths after repairing.

↓

②

```
2.PROTECTION
```

The protection history can be checked.

↓

③

```
3.RS232C RESET
```

Switches from 232C standby mode to normal standby mode.

↓

④

```
4.OP INFO
```

Operation Info for the unit can be checked.

↓

⑤E3 model only

```
5.TUNER FRQ SET
```

Enables the reception frequency STEP of the ANALOG TUNER to be changed.

↓

⑥

```
6.REMOTE ID
```

This function is for operating only the desired AV receiver.

3-1.4. Canceling the selected mode

Press the power button to turn off the power.

3-2. Protection History Display Mode

3-2.1. Actions

This mode enables the unit to record and display the event when the THERMAL, ASO or DC protection is activated.
If protections have been activated multiple times, the latest protection operation is recorded.

3-2.2. Starting up

While holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-X3700H for E3, E1C

Select the "**2. PROTECT**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

AVC-X3700H for E2

Select the "**2. PROTECT**" using the "**SOUND MODE / PURE DIRECT**" button, then press the "**STATUS**" button then to confirm.

3-2.3. Protection information and displays

- Press the "**STATUS**" button in Protection History Display Mode.
- The protection history can be checked.

(1) If no protections has occurred.

```
NO PROTECT
```

(2) ASO (if the last protection is ASO)

```
PRT:ASO
```

Cause A short circuit occurred between the speaker terminals, or speakers with an impedance outside the rating were connected.
Note : Short circuits in speaker terminals or speakers can be identified.
If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(3) DC (if the last protection is DC)

```
PRT:DC
```

Cause : DC output of the power amplifier is abnormal.
If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(4) Case of THERMAL (when the last protection incident is THERMAL(H) protection)

```
PRT:THERMAL H
```

Cause : Abnormal heat sink temperature.
If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(5) Case of CURRENT (when the last protection incident is CURRENT protection)

```
:CURRENT
```

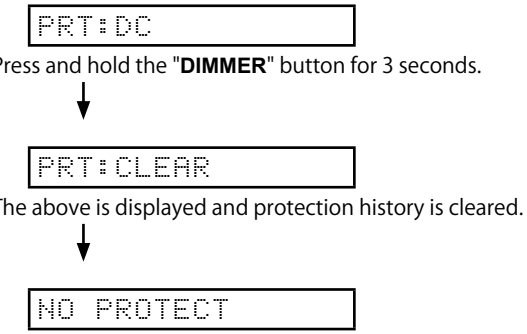
Cause : An over current flowed in power amp.
If the power is turned on in the abnormal state, protection is activated after around 90 seconds and the power is turned off.

Caution : These protections may also be activated due to other factors such as disconnection of connectors or operations around the MCU.
After viewing the above protection history, press the "**STATUS**" button to return to the normal display.

3-2.4. Clearing the Protection History

There are two ways to clear the protection history.

(1) Activate Protection History Display Mode. Press the "**STATUS**" button to display the protection history.



(2) Initialize this unit. (See "POST-SERVICE PRECAUTIONS")

※ Use the method in **3-2.4. (1)** if you do not want to erase your settings from this unit.

Warning Displays by POWER LED

If the power is turned Off while a protection is being detected, the POWER LED flashes in red to warn you depending on the protection status as follows.

(1) ASO/DC protection: Flashes at 0.5-second intervals (0.25 seconds lit, 0.25 seconds unlit)
(2) THERMAL(H) protection: Flashes at 2-second intervals (1 seconds lit, 1 seconds unlit)
(3) CURRENT protection: Flashes at 4-second intervals (2 seconds lit, 2 seconds unlit)

3-3. 232C Standby Clear Mode

3-3.1. Actions

Switches from 232C standby mode to normal standby mode.

3-3.2. Starting up

While holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-X3700H for E3, E1C

Select the "**3. RS232C RESET**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

AVC-X3700H for E2

Select the "**3. RS232C RESET**" using the "**SOUND MODE / PURE DIRECT**" button, then press the "**STATUS**" button then to confirm.

3-4. Operation Info Mode

3-4.1. Actions

This mode enables the unit to display the accumulated operating time, power On count and each protection count.

3-4.2. Starting up

While holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-X3700H for E3, E1C

Select the "**4. OP INFO**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

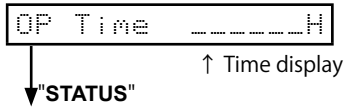
AVC-X3700H for E2

Select the "**4. OP INFO**" using the "**SOUND MODE / PURE DIRECT**" button, then press the "**STATUS**" button then to confirm.

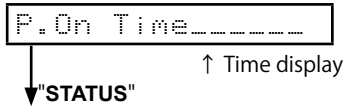
3-4.3. Operations

Press the "**STATUS**" button after starting up this device in Operation Info mode.
The following information is displayed in the following order.

(1) Accumulated operating time

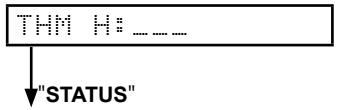


(2) Power On time

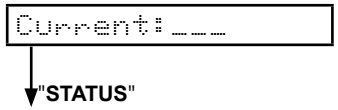


(3) DC / ASO Protection count

(4) Thermal Protection (H) count



(5) Current Protection count



(Returns to normal display)

3-5. TUNER STEP mode (E3 only)

3-5.1. Actions

This is a special mode that enables the reception frequency STEP of the ANALOG TUNER to be changed.

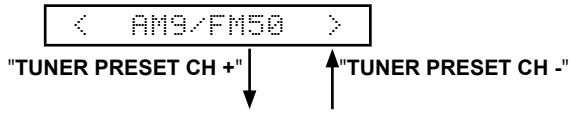
3-5.2. Starting up

While holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.
Select the "**5. TUNER FREQ**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

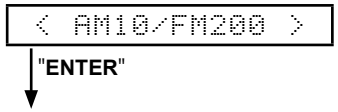
3-5.3. Displays

Start up this unit in TUNER STEP mode, select the desired option using the "**TUNER PRESET CH +-**" button, then enter using the "**STATUS**" button.
The following information is displayed in the following order.

(1) AM9 kHz / FM50 kHz is selected



(2) AM10 kHz / FM200 kHz is selected



(3) Press the power button to turn off the power.
(4) Press the power button to turn on the power.

3-6. Remote ID Setup Mode

3-6.1. Actions

This function allows only the desired AV receiver to be operated if multiple DENON AV receivers are used in the same room.

3-6.2. Starting up

While holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-X3700H for E3, E1C

Select the "**6. REMOTE ID**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

AVC-X3700H for E2

Select the "**6. REMOTE ID**" using the "**SOUND MODE / PURE DIRECT**" button, then press the "**STATUS**" button then to confirm.

3-6.3. Operations

(1) When Remote ID Setup mode is activated, the following message is displayed.

(2) Press the desired "**QUICK SELECT 1 - 4**" button.

Button	Display
QUICK SELECT 1	REMOTE ID 1
QUICK SELECT 2	REMOTE ID 2
QUICK SELECT 3	REMOTE ID 3
QUICK SELECT 4	REMOTE ID 4

(3) Press the power button to turn off the power.
(4) Press the power button to turn on the power.

※ Only "**QUICK SELECT 1 - 4**" and the POWER button on the unit can be used in Remote ID Setup Mode.
※ The remote ID of the remote control supplied with this unit cannot be changed.

NOTE :
If the ID of the unit and remote control do not match, "**AVAMP**∗" appears on the display of the unit when the remote control is used
(∗ : own remote control ID).

4. Protection Pass Mode

4.1. Actions

- This mode allows the power to be turned on without activating protections.
- This mode functions in the same way as normal power-on, except that protections are not activated.
- When using the protection pass mode, do not connect speakers to the speaker terminals.

4.2. Operations

AVR-X3700H for E3, E1C

While holding down buttons "**TUNER PRESET CH +**", "**ZONE2 SOURCE**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVC-X3700H for E2

While holding down buttons "**SOUND MODE**", "**ZONE2 SOURCE**" and "**STATUS**" simultaneously, press the power button to turn on the power.

The device returns to the normal display message after the following is displayed.

This is displayed for 5 seconds before returning to the normal display.

5. Network Initialization Mode

5.1. Actions

The following items are initialized.

(1) Network setup
(2) Friendly Name
(3) Auto Update setting
(4) Allow Update setting
(5) Time Zone setting
(6) Queue list
(7) Internet Radio recently played station
(8) Quick Select playback station
(9) AirPlay Password
(10) Bluetooth Pairing History

5.2. Operations

AVR-X3700H for E3, E1C

When the power is on and the input source is HEOS Music, press and hold the "**TUNER PRESET CH +**" and "**ZONE2 ON/OFF**" buttons for more than 3 seconds.

AVC-X3700H for E2

When the power is on and the input source is HEOS Music, press and hold the "**SOUND MODE**" and "**ZONE2 ON/OFF**" buttons for more than 3 seconds.

Initializing Display

Complete Display

This is displayed for 5 seconds before returning to the normal display.

6. Clearing of Operation Info

6.1. Actions

• Displays the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection.

6.2. Operations

Remove all input/output terminals and the AC plug.
Connect the AC plug again and place the product in standby mode.
While holding down buttons "**ZONE2 SOURCE**" and "**STATUS**" simultaneously, press the power button to turn on the power.

When "**PRODUCT MODE**" appears on the display, release the button and press the button "**power**" → "**ZONE2 ON/OFF**" to place the product in standby mode.

7. Log Capture feature

7.1. Actions

- Acquires the Network Module log.
- The log is deleted when the Network Module is deleted.
  If an error occurs, it is acquired without turning off the power of this unit.
- The log can be copied to a writable USB flash drive.
  It can also be sent to a server if this unit is connected to the Internet.
- The log is stored in the root folder of the USB flash drive with the name "**logs-<friendlyname>-<number>.tar.gz**".
  <**friendlyname**> indicates the friendly name and <**number**> indicates the sequence number.
  Previous logs on the USB flash drive are not overwritten. The log is encrypted.

7.2. Starting up

AVR-X3700H for E3, E1C

While the power is On, hold down buttons "**TUNER PRESET CH +**", "**ZONE2 SOURCE**" and "**STATUS**" for at least 3 seconds.

AVC-X3700H for E2

While the power is On, hold down buttons "**SOUND MODE**", "**ZONE2 SOURCE**" and "**STATUS**" for at least 3 seconds.

7.2.1. If the USB flash drive is connected after starting the unit

(1) The log is written to the USB flash drive and "**Storing Logs...**" is displayed.
The log is also sent to the server.

(2) When a log package is saved to a USB flash drive, "**USB SUCCESS**" appears in the display for 5 seconds, regardless of whether the upload to the server was successful.

(3) When saving of the log package fails, "**USB FAILED**" appears in the display for 5 seconds, regardless of whether the upload to the server was successful.

7.2.2. When the USB flash drive is not connected after startup, and this unit is connected to the Internet.

(1) The log is sent to the server and the display shows "**Storing Logs...**" for 5 seconds.

(2) When the log package is uploaded, the ticket numbers "**XXXXX**" and "**Push ENTER**" are displayed until the "**Enter**" or "**Back**" button of RC is pressed.

(3) If the log package upload fails, "**FAILED**" is displayed for 5 seconds.

8. Protection popups

1. Overview

When the power is turned on after protection is activated, a popup will prompt you to check the connection of the speaker cables and the ventilation around the unit before taking this product to one of our service centers.
Protection popups appear when ASO or thermal protection is activated.

2. Actions

(1) When the user turns on the power after it is turned off by ASO or thermal protection, a popup corresponding to the protection that was activated is displayed.

ASO Protection

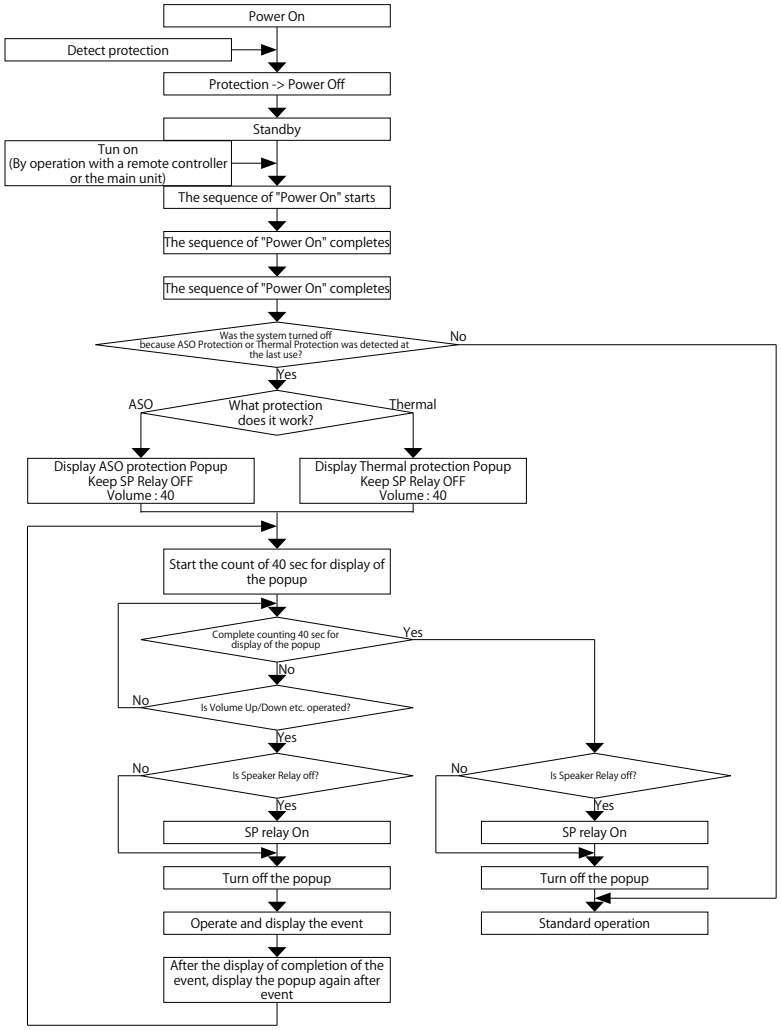
Thermal Protection

- Speaker Relay is turned off and the volume of the main zone is set to 40 while the popup is displayed to prevent protection from being activated again.
- The same message also scrolls through the display while the popup is displayed.
- If an abnormality occurs again while the popup is displayed, the power will turn off as it usually does in the case of abnormalities.

(2) To clear the popup, press the ENTER button to select OK. Otherwise, the popup disappears 40 seconds after being displayed. Speaker Relay turns on and normal operation resumes when the popup disappears.

- Protection popups are only displayed once, when the power is turned on after protection is activated.
  If you need to confirm the type of protection that was activated (ASO or thermal) later, use the protection history display mode.

Below is a basic flowchart of how the protection popups operate.



Service Path Check Mode

1.1. Actions

This function is convenient for confirming problem paths in the product and checking the paths after repairing.
The video system, audio system and fan operation paths can be checked.
The backup data is not rewritten.

1.2. Starting up

While holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-X3700H for E3, E1C

Select the "**1. SERVICE CHECK**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

AVC-X3700H for E2

Select the "**1. SERVICE CHECK**" using the "**SOUND MODE / PURE DIRECT**" button, then press the "**STATUS**" button then to confirm.

1.3. Canceling diagnostic mode

Press the power button to turn off the power.

1.4. Selecting items to check

Press the ① button to switch between video items and audio items.
Press the ② or ③ button to select the previous or next item.

	The unit			Remote control unit		
Actions	①	②	③	①	②	③
	Audio ⇔ Video ⇔ FAN	PREVIOUS	NEXT	Audio ⇔ Video ⇔ FAN	PREVIOUS	NEXT
Button	DIMMER	QUICK SELECT 1	QUICK SELECT 2	SLEEP	CURSOR ◄	CURSOR ►

1.5. Audio system confirmation items

See the block diagram fig.AXXth.

Paths to be confirmed			Display	Settings	What to confirm
1	Analog	fig.A01	A01:ANALOG PASS	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : DIRECT Amp assign : 9.1ch Floor Layout : 5.1&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off	• Analog input ⇒ Speaker output (Front L/R) • Analog input ⇒ Pre OUT output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
2	DIGITAL (MAIN)	fig.A02a fig.A02b	A02:DIGITAL	Input Source : CBL/SAT Input Mode : DIGITAL (fixed) Sound mode : MULTI CH STEREO Amp assign : 9.1ch Floor Layout : 5.1&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height Speaker Select : Floor Speaker Config ALL Speaker = Small/SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off	• Digital input ⇒ Speaker output (Front L/R, Center, Surround L/R, S.Back L/R) • Digital input ⇒ Pre OUT output (Front L/R, Center, Surround L/R, S.Back L/R, Subwoofer1/2) (※ The input source can be switched to any source except CBL/SAT.)

Paths to be confirmed			Display	Settings	What to confirm
3	DIGITAL (ZONE2)	fig.A03a fig.A03b fig.A03c	A03:DIGITAL-Z2	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO ZONE2 Source : HEOS Music Amp assign : 7.1ch + ZONE2 Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : On	• Digital(PCM) input ⇒ Amp Assign Speaker output (Height2 (ZONE2) L/R) • Digital(PCM) input ⇒ Pre OUT output (ZONE2 L/R) (※ Source for ZONE2 does not change even when Source for the main zone is changed.) (※ The ZONE2 input source can be switched to any source except HEOS Music.) (Do not select "SOURCE" as the input source for Zone2.)
4	HDMI	fig.A04a fig.A04b fig.A04c	A05:HDMI	Input Source : CBL/SAT Input Mode : HDMI (fixed) Sound mode : STEREO Amp assign : 9.1ch Floor Layout : 5ch&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off	• HDMI input ⇒ Speaker output (Front L/R) • HDMI input ⇒ Pre OUT output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
5	Analog AD (MAIN)	fig.A05a fig.A05b	A06:AD	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : MULTI CH STEREO Amp assign : 9.1ch Floor Layout : 5ch&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height Speaker Select : Floor & Height Speaker Config ALL Speaker = Small/SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off	• Analog input ⇒ Speaker output (Front L/R, Center, Surround L/R, S.Back L/R, Height1 L/R) • Analog input ⇒ Speaker output, SW(20Hz) (Front L/R, Center, Surround L/R, S.Back L/R, Height1 L/R, Subwoofer1/2) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
6	Analog Amp Assign (Amp Assign : ZONE2)	fig.A06	A07:ASSIGN-Z2	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO ZONE2 Source : Source CBL/SAT(select a setting other than Source) Amp assign : 7.1ch + ZONE2 Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : On	• Analog input ⇒ Speaker output (Height2 (ZONE2) L/R) • Analog input ⇒ Pre OUT output (ZONE2 L/R) (※ Source for ZONE2 does not change even when Source for the main zone is changed.) (※ The ZONE2 input source can be switched to any source except HEOS Music.) (Do not select "SOURCE" as the input source for Zone2.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
7	Amp Assign (Amp Assign : BiAMP)	fig.A07a fig.A07b	A11:ASSIGN-BiAMP	Input Source : CBL/SAT Input Mode : Auto Sound mode : MULTI CH STEREO Amp assign : 7.1ch + BiAMP Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off	• Analog input ⇒ Speaker output (Height2 L/R (Top Front)) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
8	Front Height	fig.A08a fig.A08b	A14:FRONT HEIGHT	Input Source : CBL/SAT Input Mode : Auto Sound mode : MULTI CH STEREO Amp assign : 9.1ch Floor Layout : 5ch Height Sp : 4ch Dolby Sp : None Height Layout : Top Front & Top Rear Speaker Select : Floor & Height MAIN ZONE : On ZONE2 : Off	• Analog input ⇒ Speaker output (Height1 L/R (Top Front), Height2 L/R (Top Front)) • Analog input ⇒ Pre OUT output (Height1 L/R (Top Front), Height2 L/R (Top Rear)) • Pre OUT output (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)

Paths to be confirmed			Display	Settings	What to confirm
9	Front Amp ⇒ Surround Back	fig.A09a fig.A09b	A20:F-AMP BACK	Input Source : CBL/SAT Input Mode : Auto Sound mode : MULTI CH STEREO Amp assign : 11.1ch Height Speakers : 4Height Speakers Height Layout : Top Front & Top Rear Pre OUT Channel : Front Speaker Select : Floor & Height MAIN ZONE : On ZONE2 : Off	・Analog input ⇒ Speaker output (S.Back L/R) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
10	ZONE2 Downmix (Amp Assign : ZONE2)	fig.A10a fig.A10b	A22:Z2 Downzmix	Input Source : CBL/SAT Input Mode : Auto ZONE2 Source : Source Amp Assign : 7.1ch + ZONE2 Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : On	・Analog input ⇒ Speaker output (Height2(ZONE2) L/R) ・Analog input ⇒ Pre OUT output (ZONE2 L/R) (※ The input source can be switched to any source except CBL/SAT.) (※ Do not change the input source for Zone2 from "SOURCE".) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)

1.6. Confirmation items for the video system

See the block diagram fig.VXXth.

Paths to be confirmed			Display	Settings	What to confirm
1	Analog Video pass	fig.V01	V01:VIDEO PASS	Input Source : CBL/SAT Video Conversion (IP Scaler) : "Off", All sources MAIN ZONE : On ZONE2 : On	• Component input ⇒ Component output • CVBS input ⇒ CVBS output (※ The input source can be switched to any source except CBL/SAT.)
2	Video Convert (HDMI ⇒ HDMI)	fig.V02a fig.V02b	V02:V.CONVERT	Input Source : CBL/SAT Video Conversion (IP Scaler) : "On", All sources IP Scaler : "HDMI", All sources Resolution : "Auto", All sources MAIN ZONE : On ZONE2 : Off	• HDMI input ⇒ IP Scaler ⇒ HDMI output. • HEOS input ⇒ IP Scaler ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)
3	HDMI pass (MAIN ZONE)	fig.V03	V03:HDMI PASS	Input Source : CBL/SAT Video Conversion (IP Scaler) : Off MAIN ZONE : On ZONE2 : Off	• HDMI input (MAIN function) ⇒ HDMI output (MAIN) (※ The input source can be switched to any source except CBL/SAT.)
4	HDMI CEC (Control Monitor : HDMI Monitor1)	fig.V04	V04:HDMI CEC	Input Source : CBL/SAT HDMI Control : On MAIN ZONE : On ZONE2 : Off	• When the power supply of a TV is put in the standby mode, make sure that the power supply of this unit is also put in the standby mode. (※ The input source can be switched to any source except CBL/SAT.) • The ARC path can also be checked (check this using the TV input source).
5	HDMI Audio (Audio : AVR)	fig.V05a fig.V05b fig.V05c	V05:H.AUDIO-AVR	Input Source : CBL/SAT HDMI Control : Off HDMI Audio : AVR (if checking the audio output from AVR)	• HDMI input (PCM, DolbyDigital, DTS) ⇒ Speaker output. • HDMI input(HD audio) ⇒ Speaker output. (※ The input source can be switched to any source except CBL/SAT.)
6	HDMI Audio (Audio : TV)	fig.V06a fig.V06b	V06:H.AUDIO-TV	Input Source : CBL/SAT HDMI Control : Off HDMI Audio : TV (if checking the audio output from TV)	• HDMI input (PCM, DolbyDigital, DTS) ⇒ HDMI output (audio output from connected TV) (※ The input source can be switched to any source except CBL/SAT.)
7	GUI	fig.V07	V07:GUI MENU ON	Input Source : CBL/SAT Video Conversion (IP Scaler) : "On", All sources IP Scaler : "HDMI", All sources Resolution : "Auto", All sources Setup Menu : On MAIN ZONE : On ZONE2 : Off	• GUI display ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)
8	HDMI pass (ZONE2)	fig.V08	V08:ZONE2 HDMI	Input Source : CBL/SAT ZONE2 Source : Source MAIN ZONE : On ZONE2 : On	• HDMI input (ZONE2 Function) ⇒ HDMI output (ZONE2) (※ The input source can be switched to any source except CBL/SAT.)

1.7. Confirmation items for fan operation

Paths to be confirmed			Display	Settings	What to confirm
1	Low-speed fan	-	F01:FAN LOW	FAN CONT_LOW = HIGH FAN CONT_HIGH = LOW MAIN ZONE : On ZONE2 : Off	• Low-speed fan (※ The input source can be switched to any source except CBL/SAT.)
2	High-speed fan	-	F03:FAN HIGH	FAN CONT_LOW = LOW FAN CONT_HIGH = HIGH MAIN ZONE : On ZONE2 : Off	• High-speed fan (※ The input source can be switched to any source except CBL/SAT.)

fig.A01

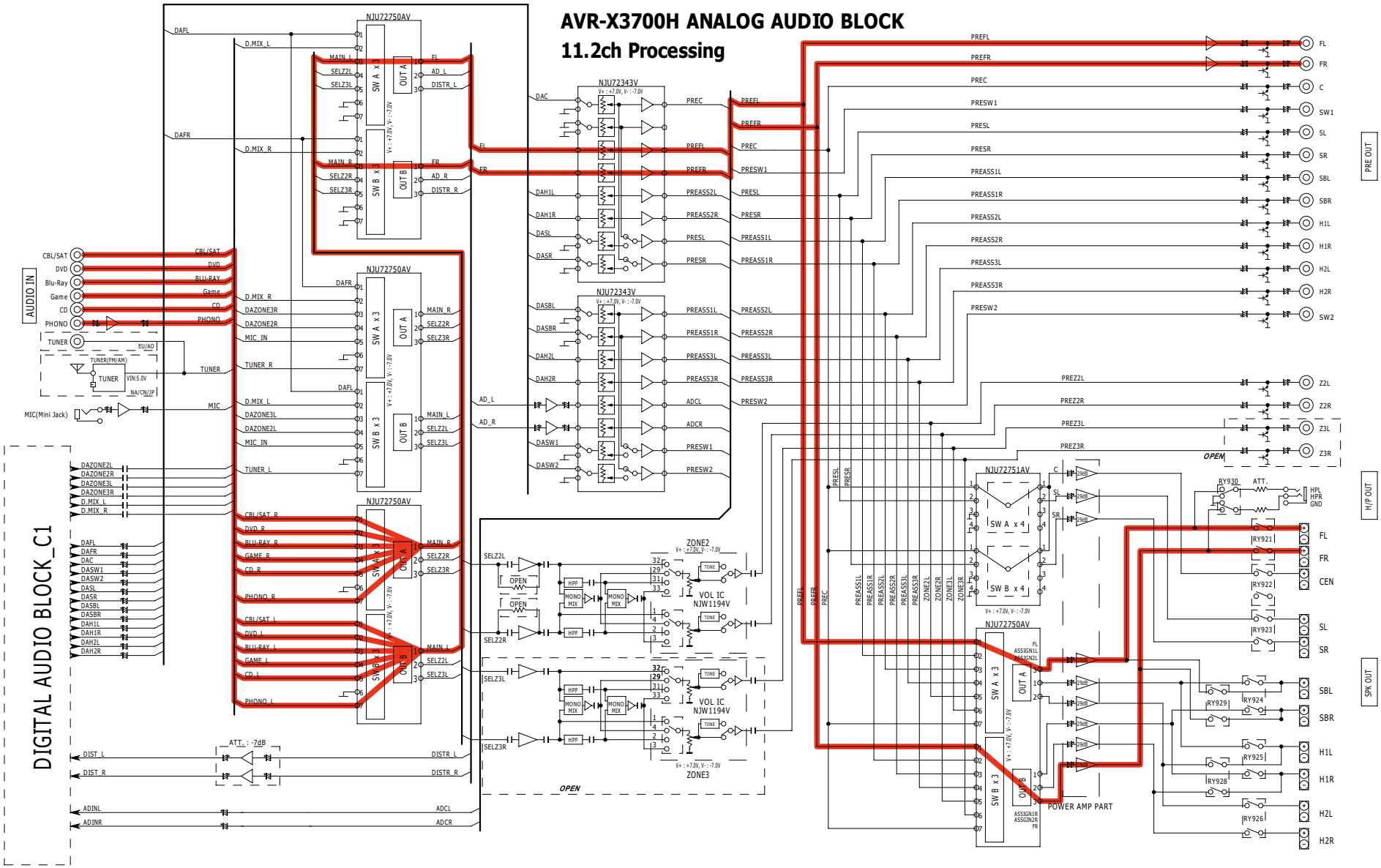

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
SW A x 3
SW B x 3
SW A x 4
SW B x 4
OUT A
OUT B
VOL IC NJW1194
ZONE2
ZONE3
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
FL
FR
C
SW1
SL
SR
SBL
SBR
H1L
H1R
H2L
H2R
SW2
Z2L
Z2R
Z3L
Z3R
CEN
HPL
HPR
GND
ATT.
OPEN

fig.A02a

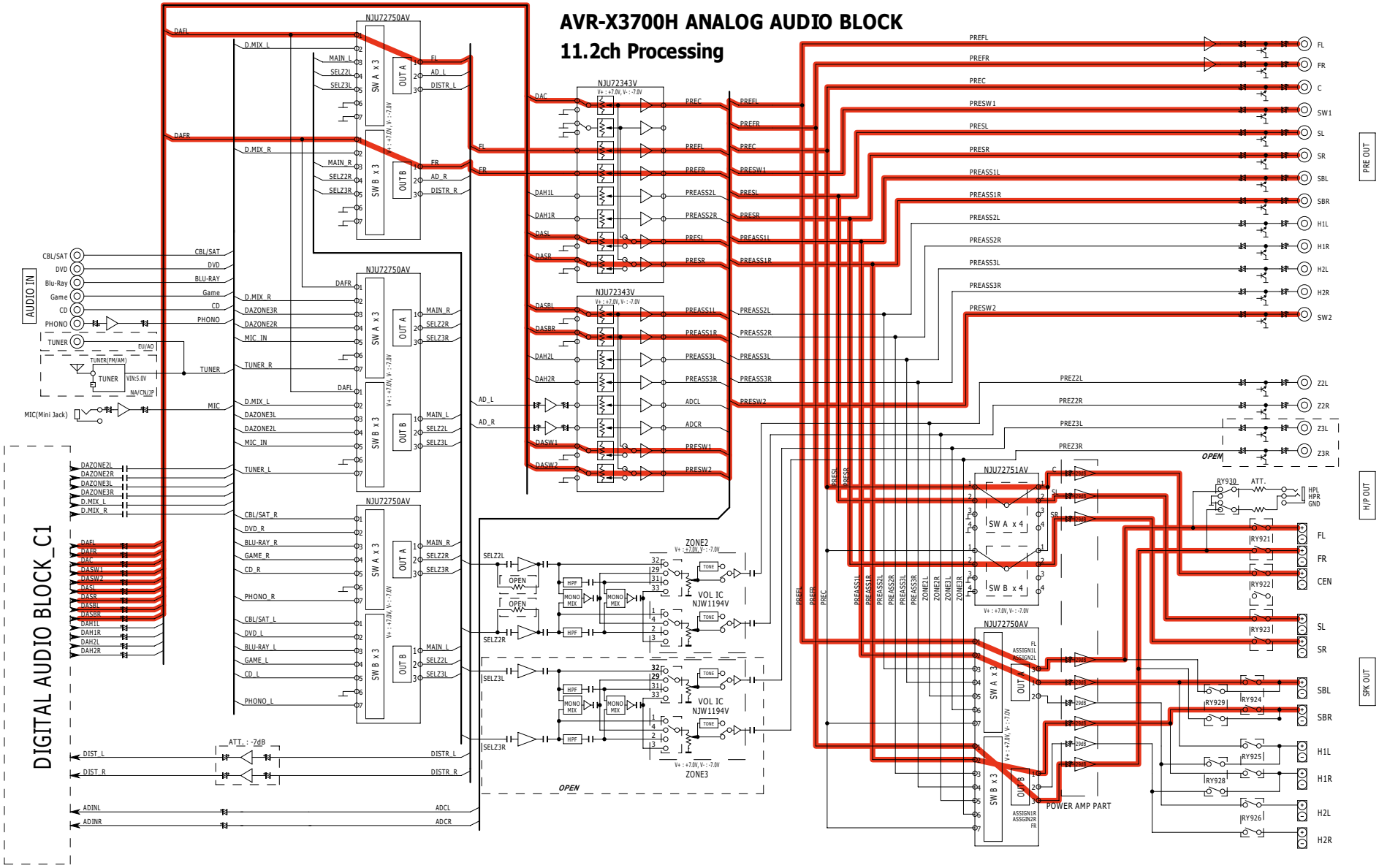

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
SW A x 3
SW B x 3
SW A x 4
SW B x 4
OUT A
OUT B
VOL IC NJW1194V
ZONE2
ZONE3
OPEN
ATT. : -7dB
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
FL
FR
C
SW1
SW2
SL
SR
SBL
SBR
H1L
H1R
H2L
H2R
CEN
Z2L
Z2R
Z3L
Z3R
HPL
HPR
GND

fig.A02b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

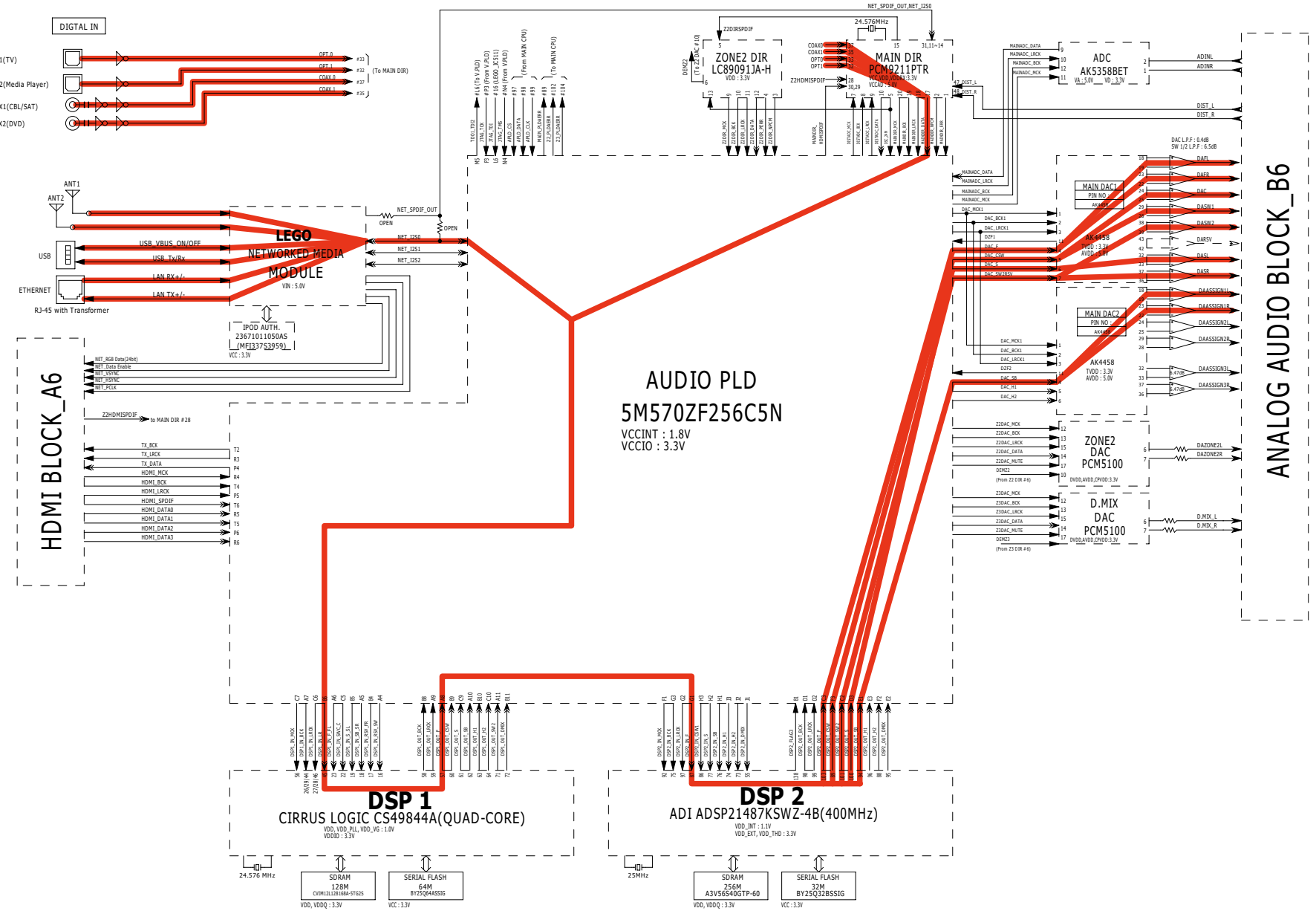


fig.A03a

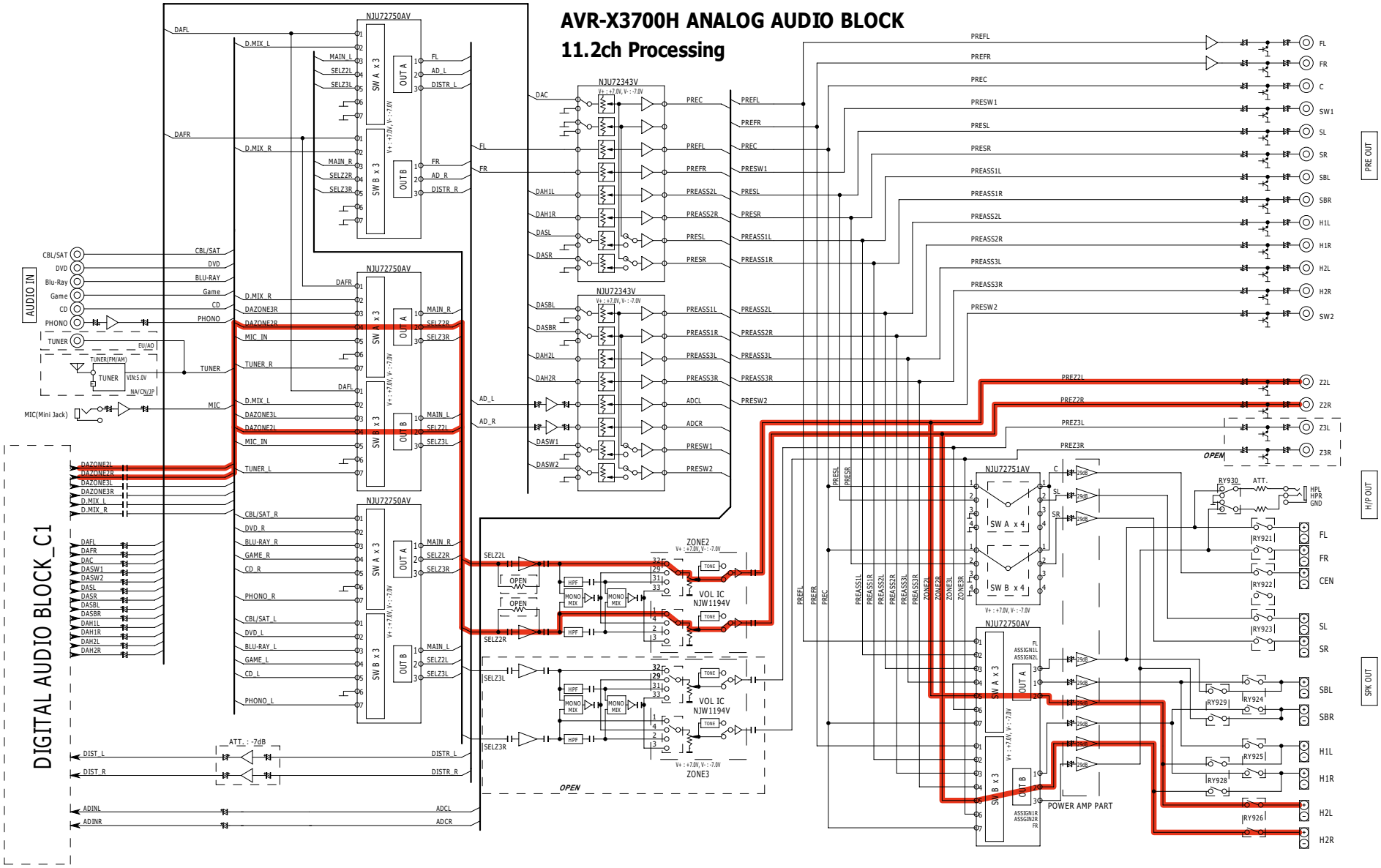

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
SW A x 3
SW B x 3
SW A x 4
SW B x 4
OUT A
OUT B
VOL IC NJW1194
ZONE2
ZONE3
OPEN
ATT. : -7dB
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
FL
FR
C
SW1
SL
SR
SBL
SBR
H1L
H1R
H2L
H2R
SW2
Z2L
Z2R
Z3L
Z3R
CEN
HPL
HPR
GND

fig.A03b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

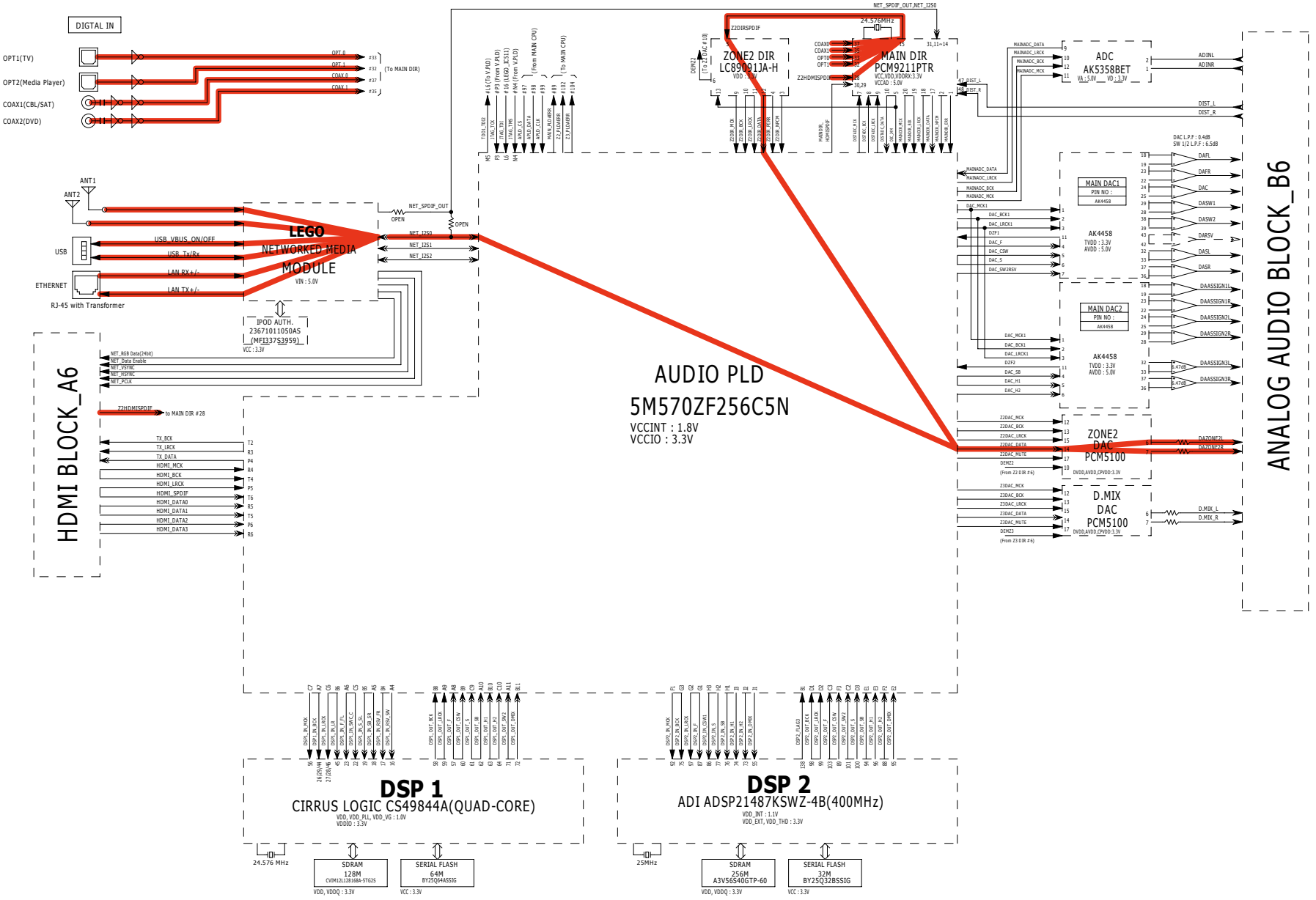


fig.A03c

AVR-X3700H HDMI BLOCK

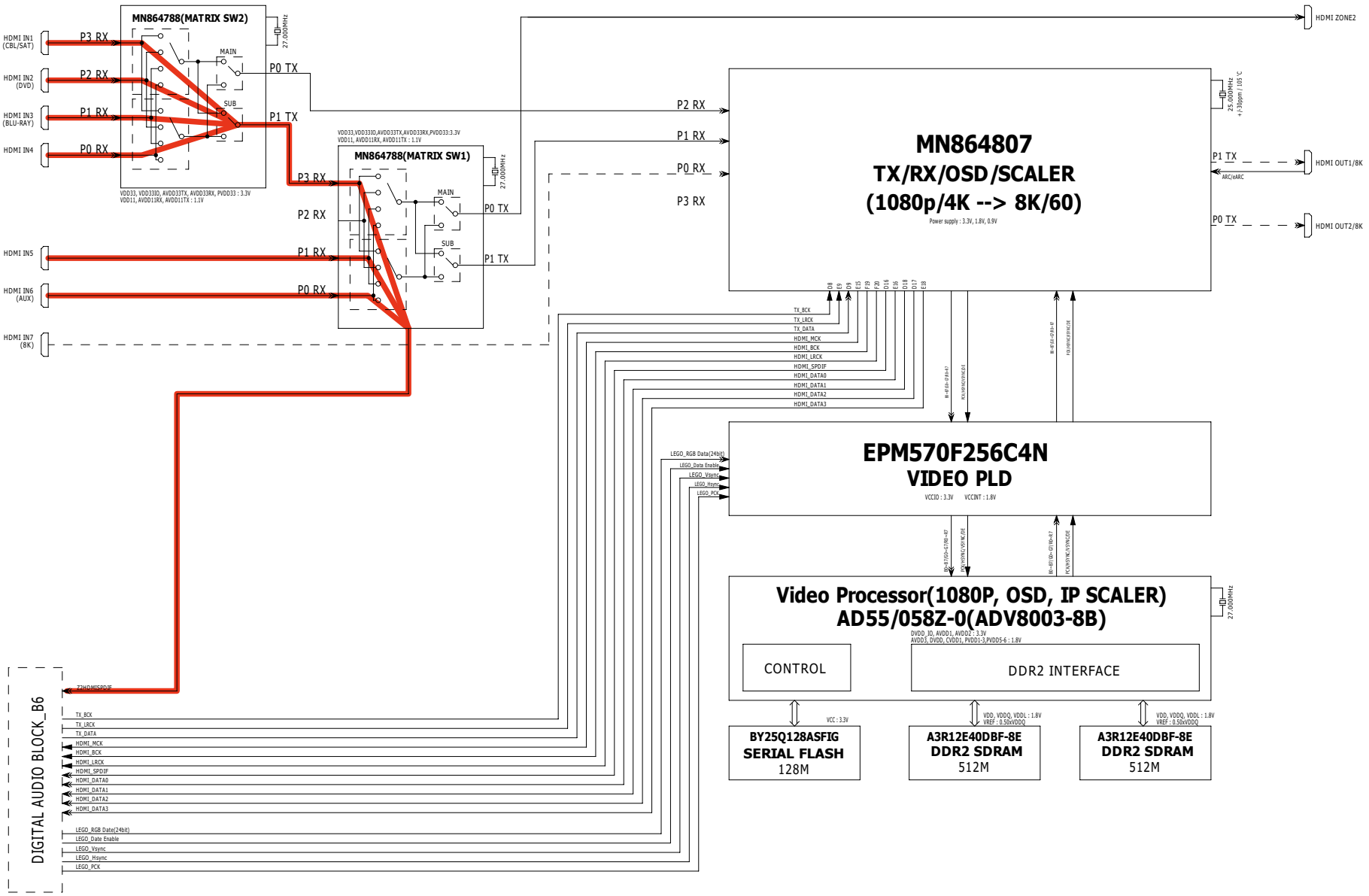


fig.A04a

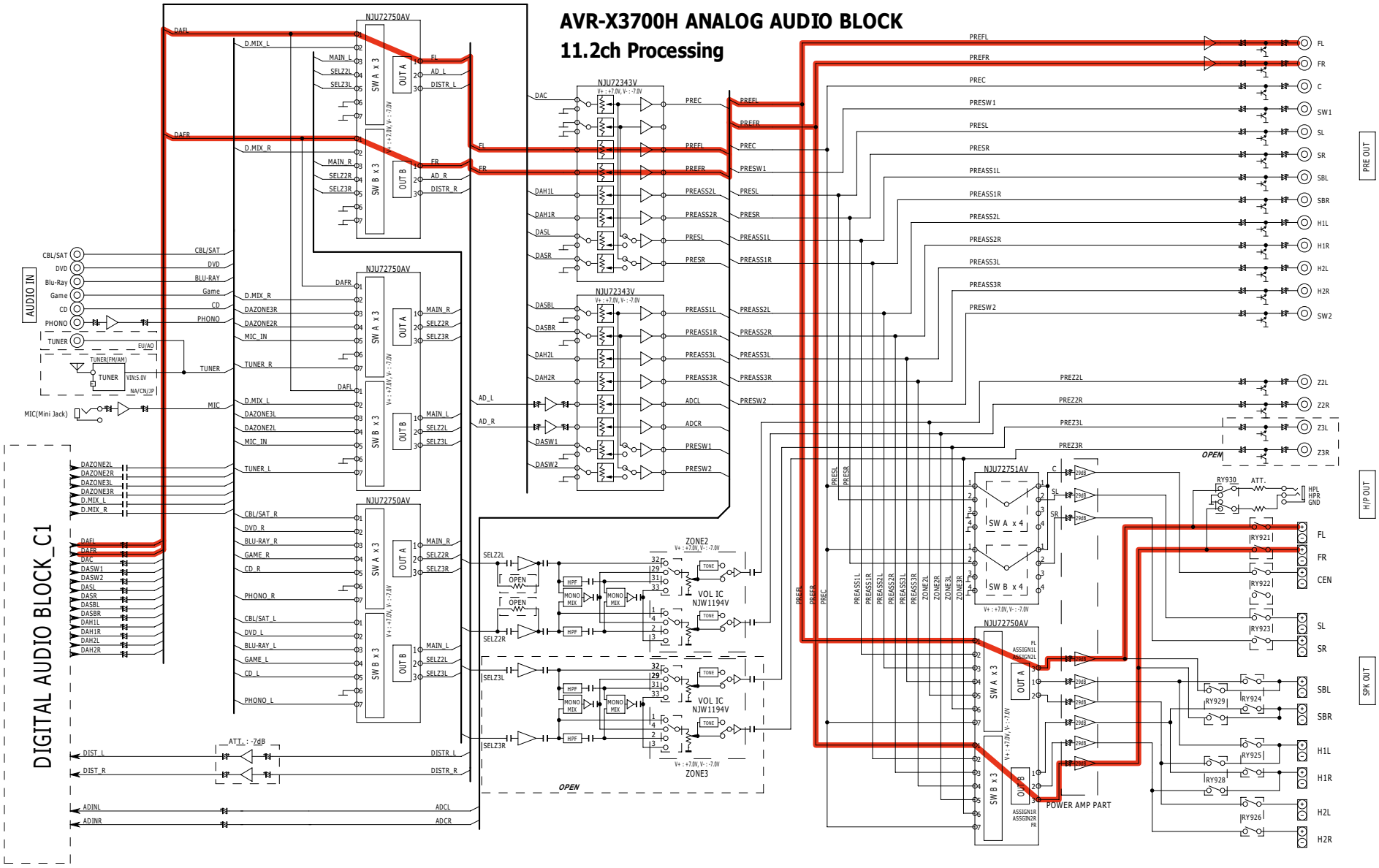

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
SW A x 3
SW B x 3
SW A x 4
SW B x 4
OUT A
OUT B
VOL IC NJW1194
ZONE2
ZONE3
OPEN
ATT. : -7dB
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
FL
FR
C
SW1
SL
SR
SBL
SBR
H1L
H1R
H2L
H2R
SW2
Z2L
Z2R
Z3L
Z3R
CEN
HPL
HPR
GND

fig.A04b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

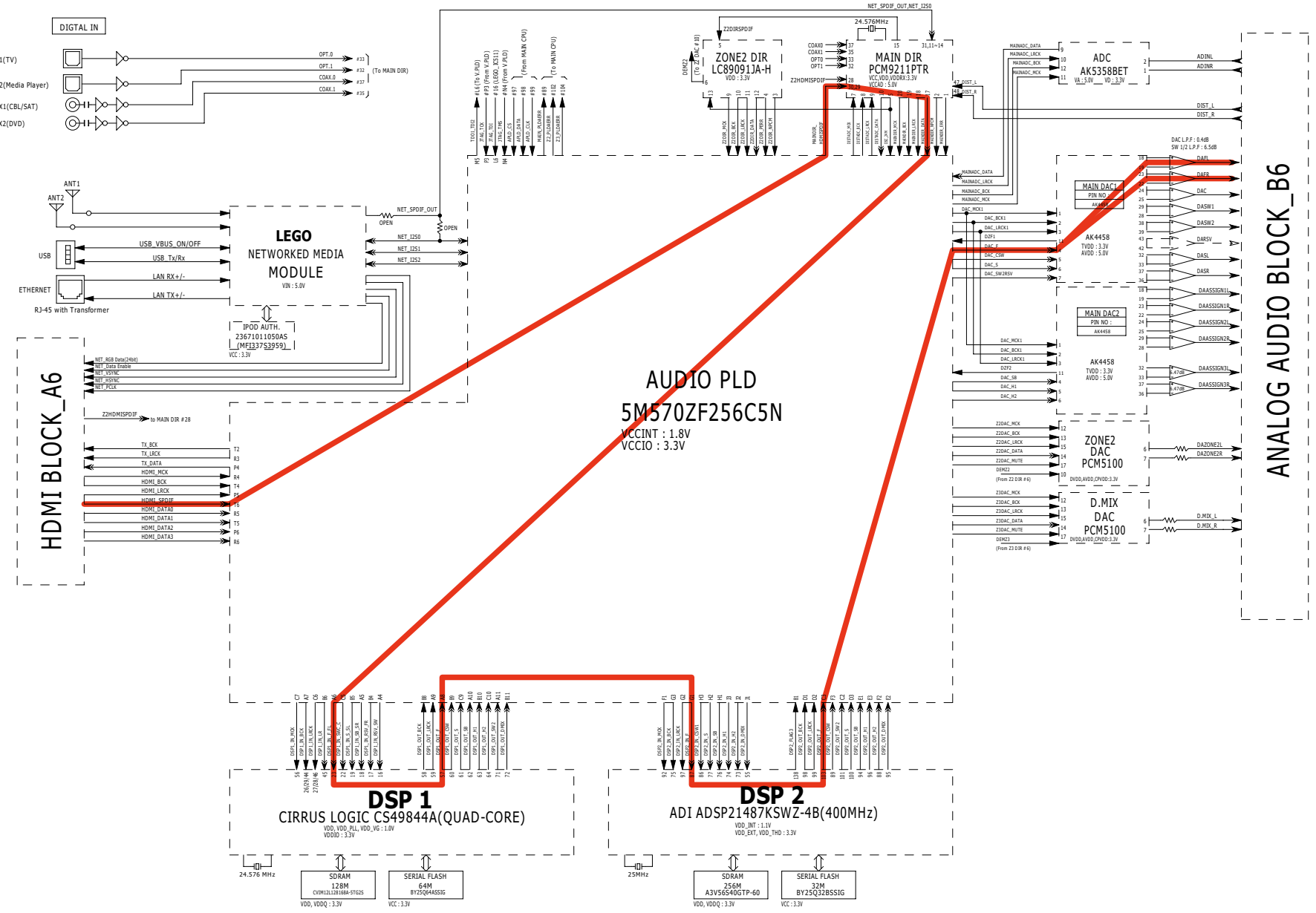


fig.A04c

AVR-X3700H HDMI BLOCK

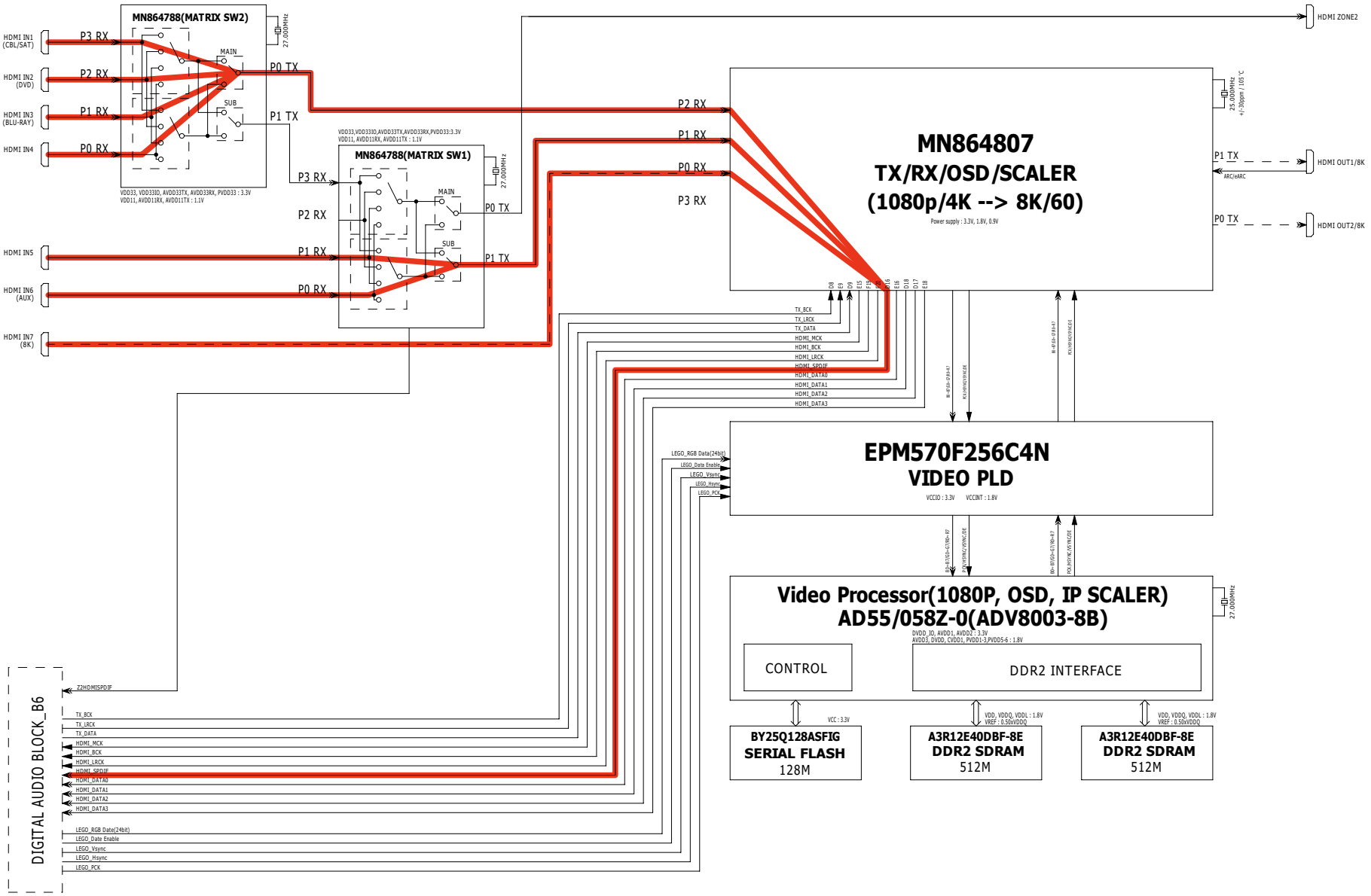


fig.A05a

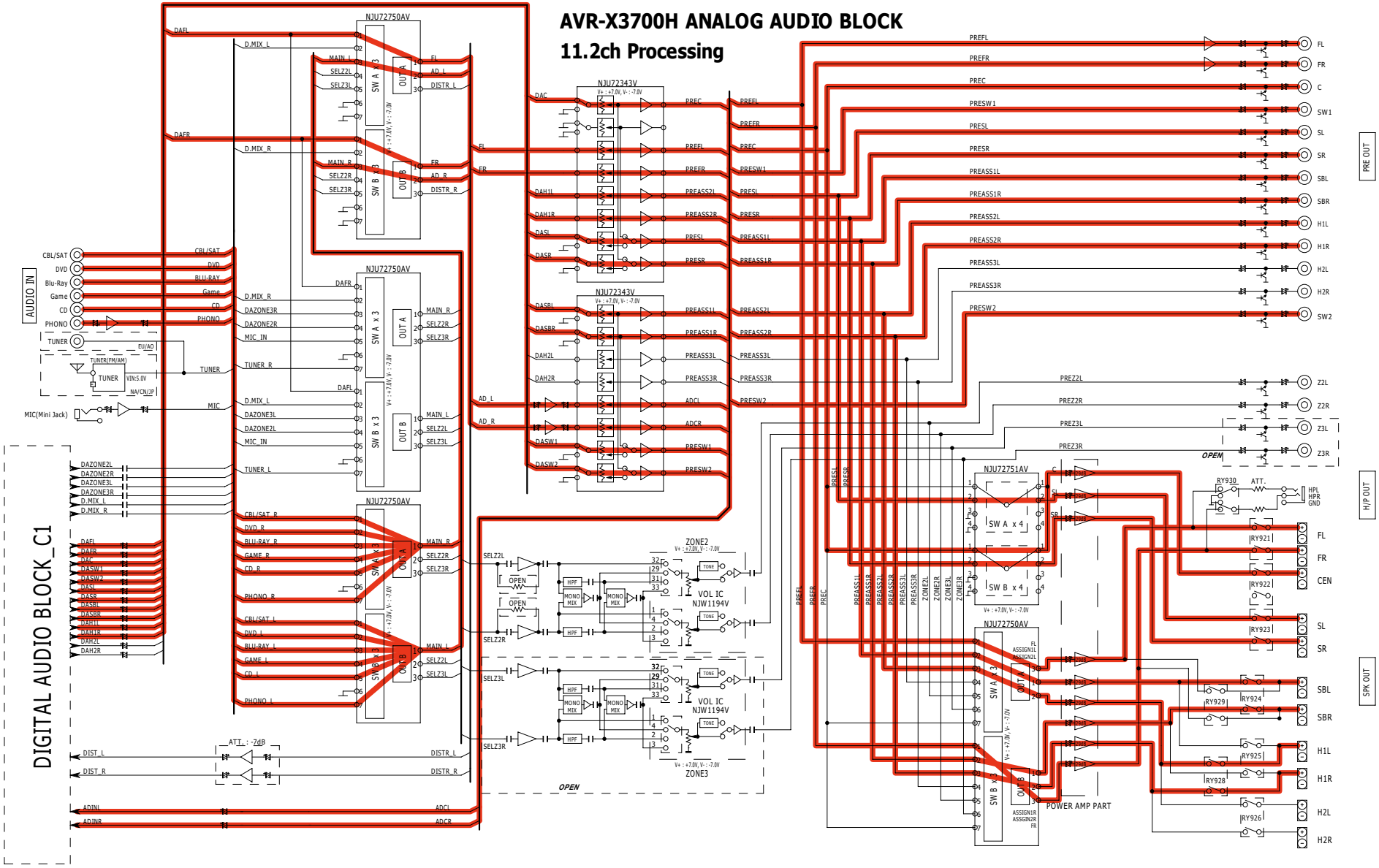

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
VOL IC NJW1194V
ZONE2
ZONE3
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
OPEN

fig.A05b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

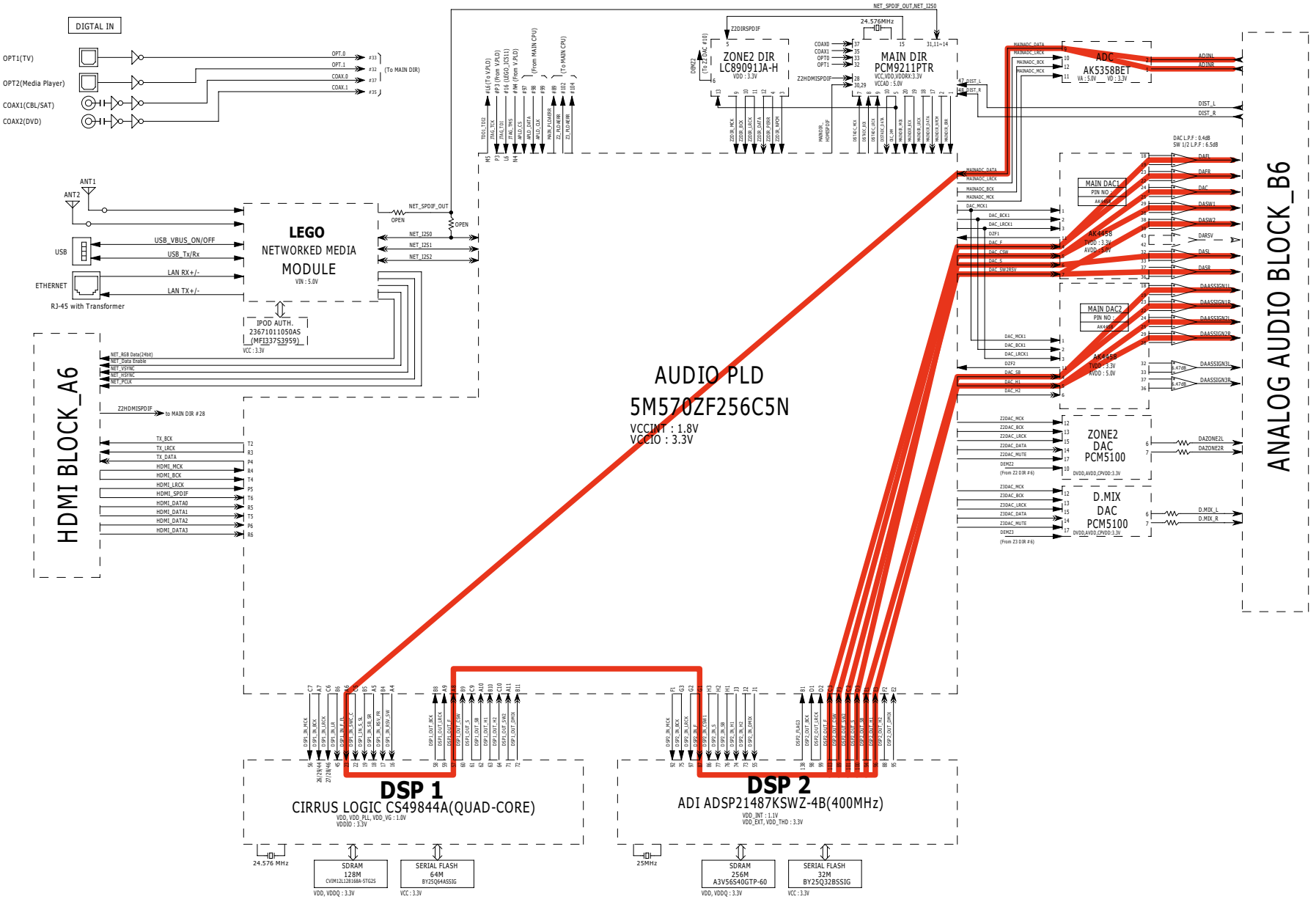


fig.A06

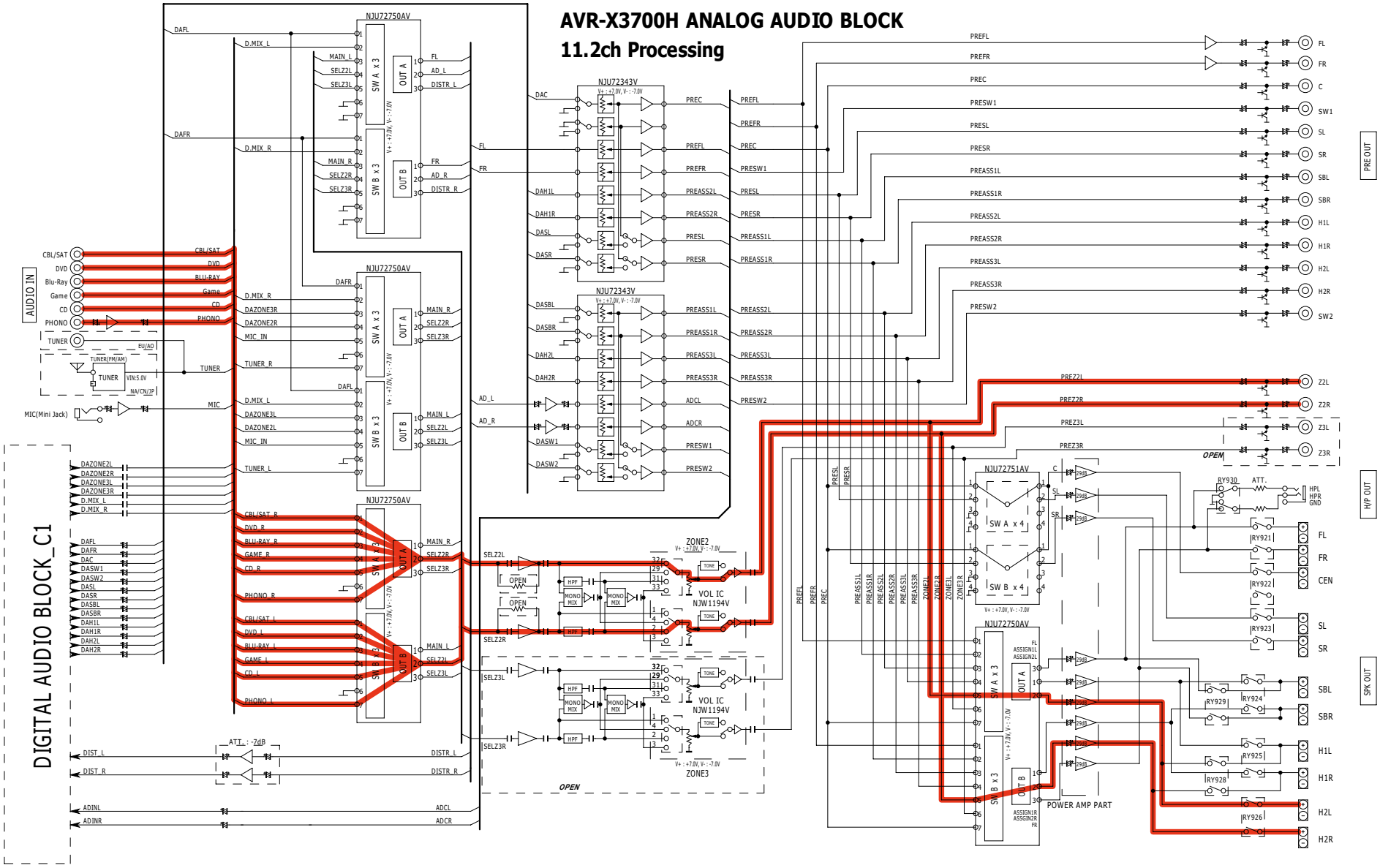

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
SW A x 3
SW B x 3
OUT A
OUT B
SW A x 4
SW B x 4
VOL IC NJW1194V
ZONE2
ZONE3
OPEN
ATT. : -7dB
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
FL
FR
C
SW1
SL
SR
SBL
SBR
H1L
H1R
H2L
H2R
SW2
Z2L
Z2R
Z3L
Z3R
CEN
HPL
HPR
GND

fig.A07a

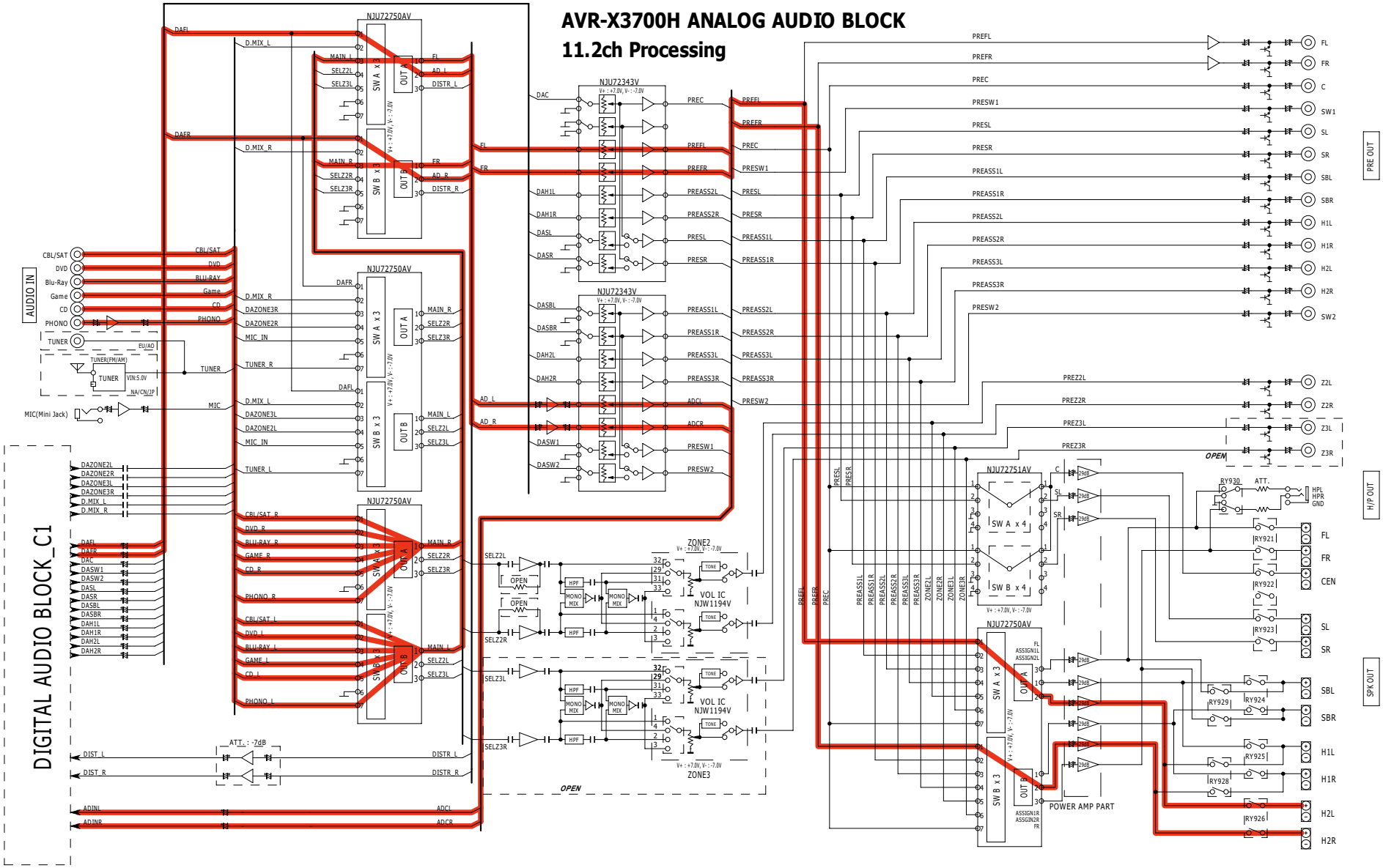

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
SW A x 3
SW B x 3
SW A x 4
SW B x 4
OUT A
OUT B
VOL IC NJW1194
ZONE2
ZONE3
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
FL
FR
C
SW1
SL
SR
SBL
SBR
H1L
H1R
H2L
H2R
SW2
Z2L
Z2R
Z3L
Z3R
CEN
HPL
HPR
GND
OPEN

fig.A07b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

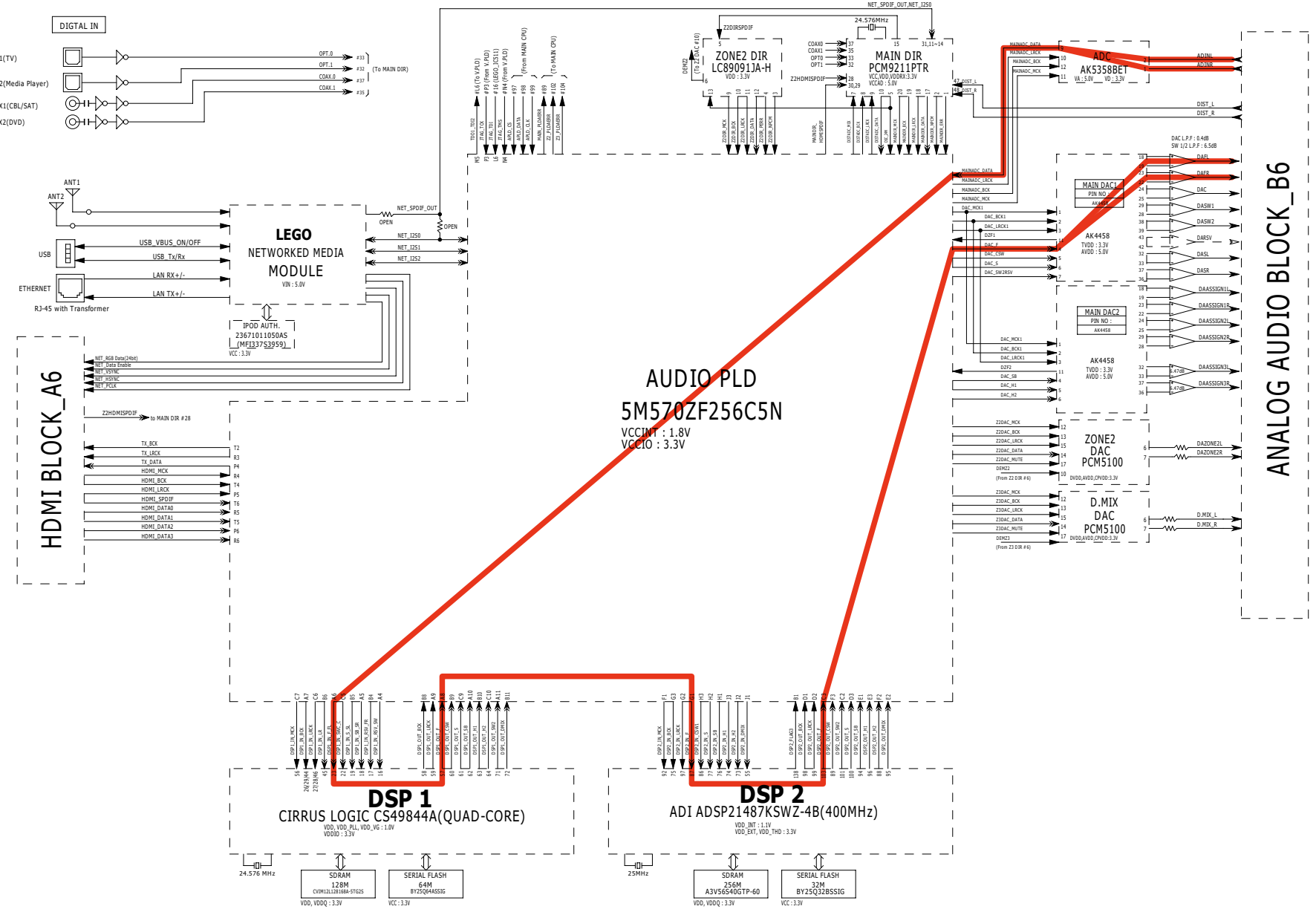
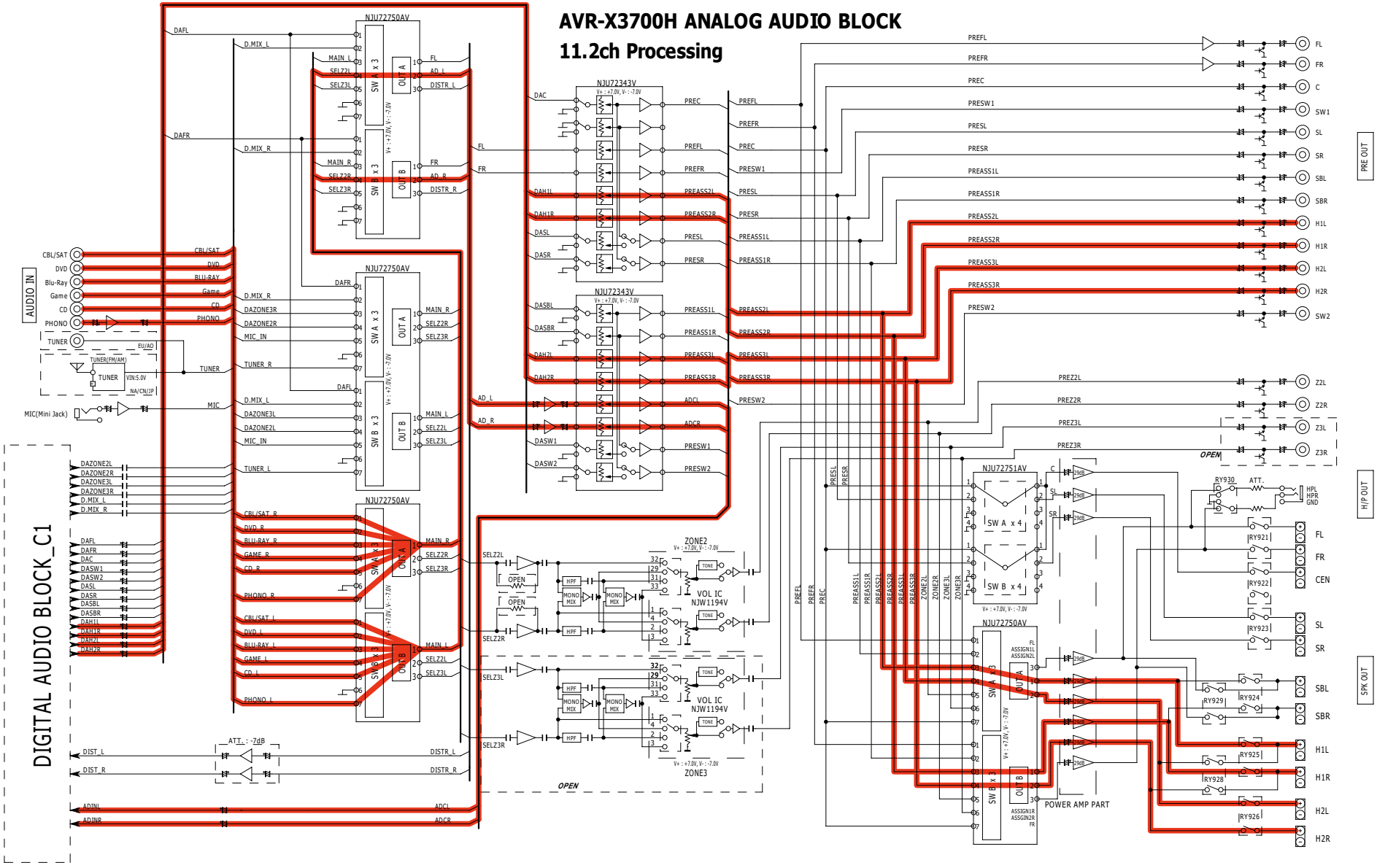


fig.A08a


AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
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TUNER
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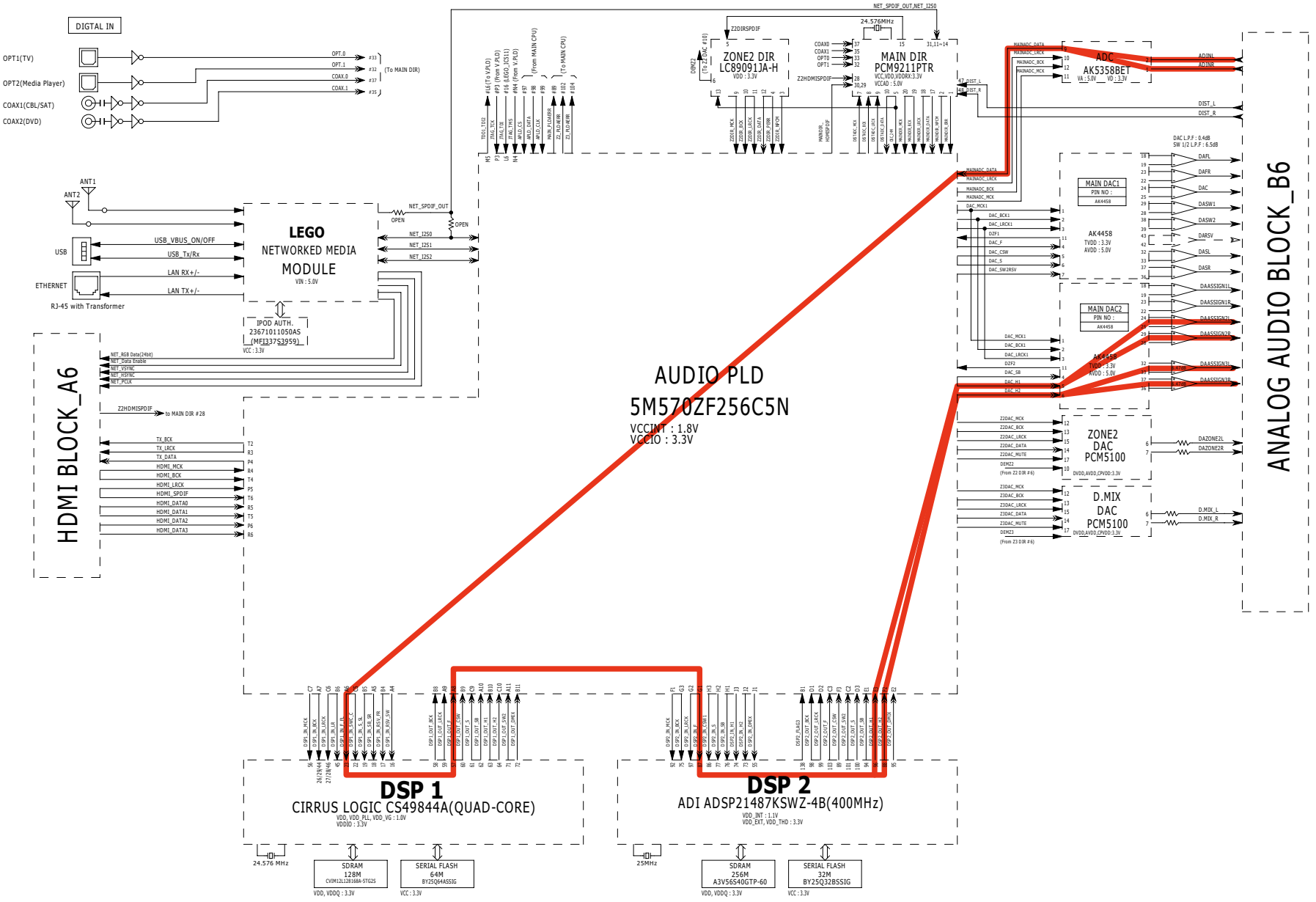
NJU72750AV
NJU72343V
NJU72751AV
VOL IC NJW1194V
ZONE2
ZONE3
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
OPEN

fig.A08b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)



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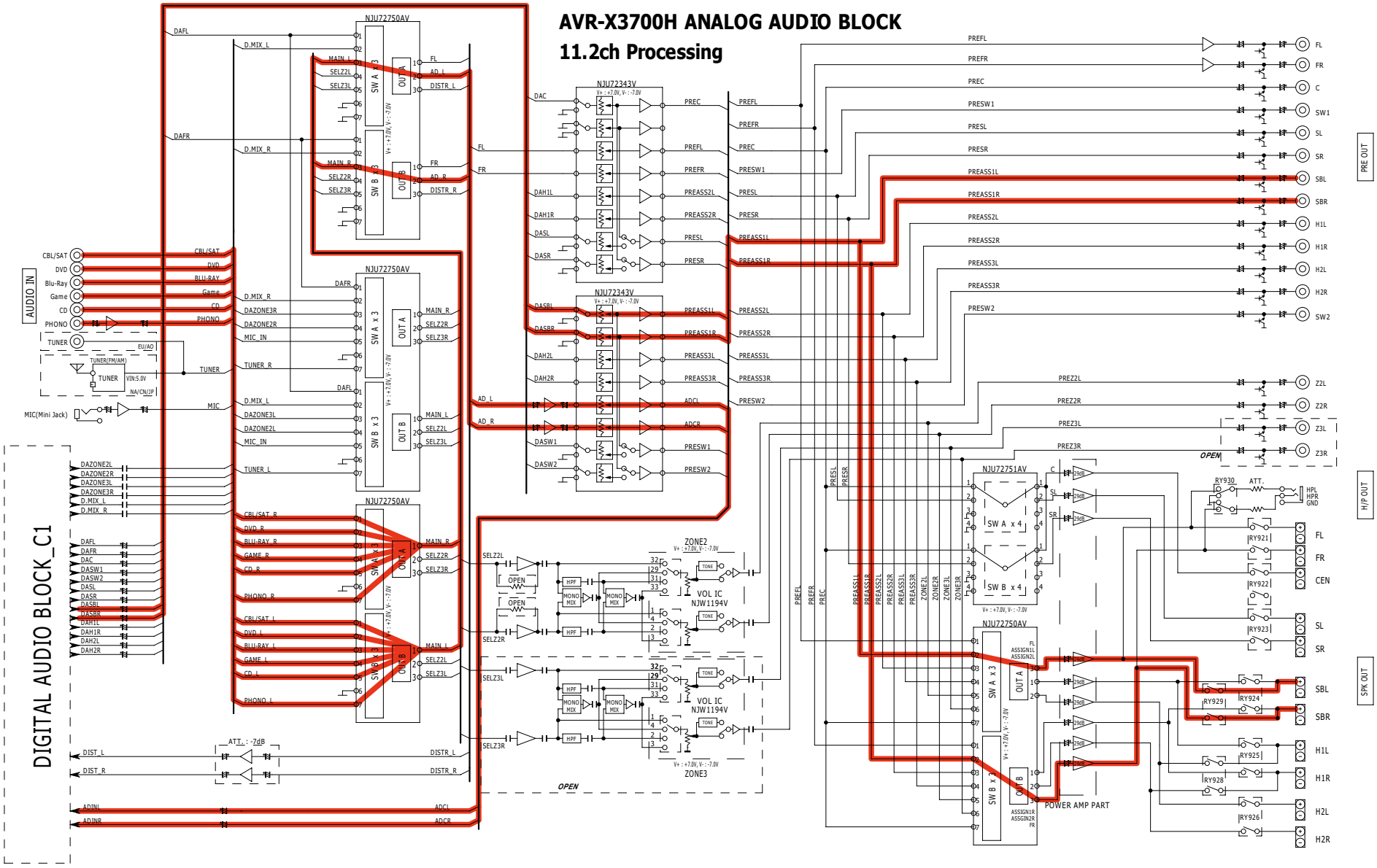
AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
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NJU72750AV
NJU72343V
NJU72751AV
VOL IC NJW1194V
ZONE2
ZONE3
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
OPEN

fig.A09b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

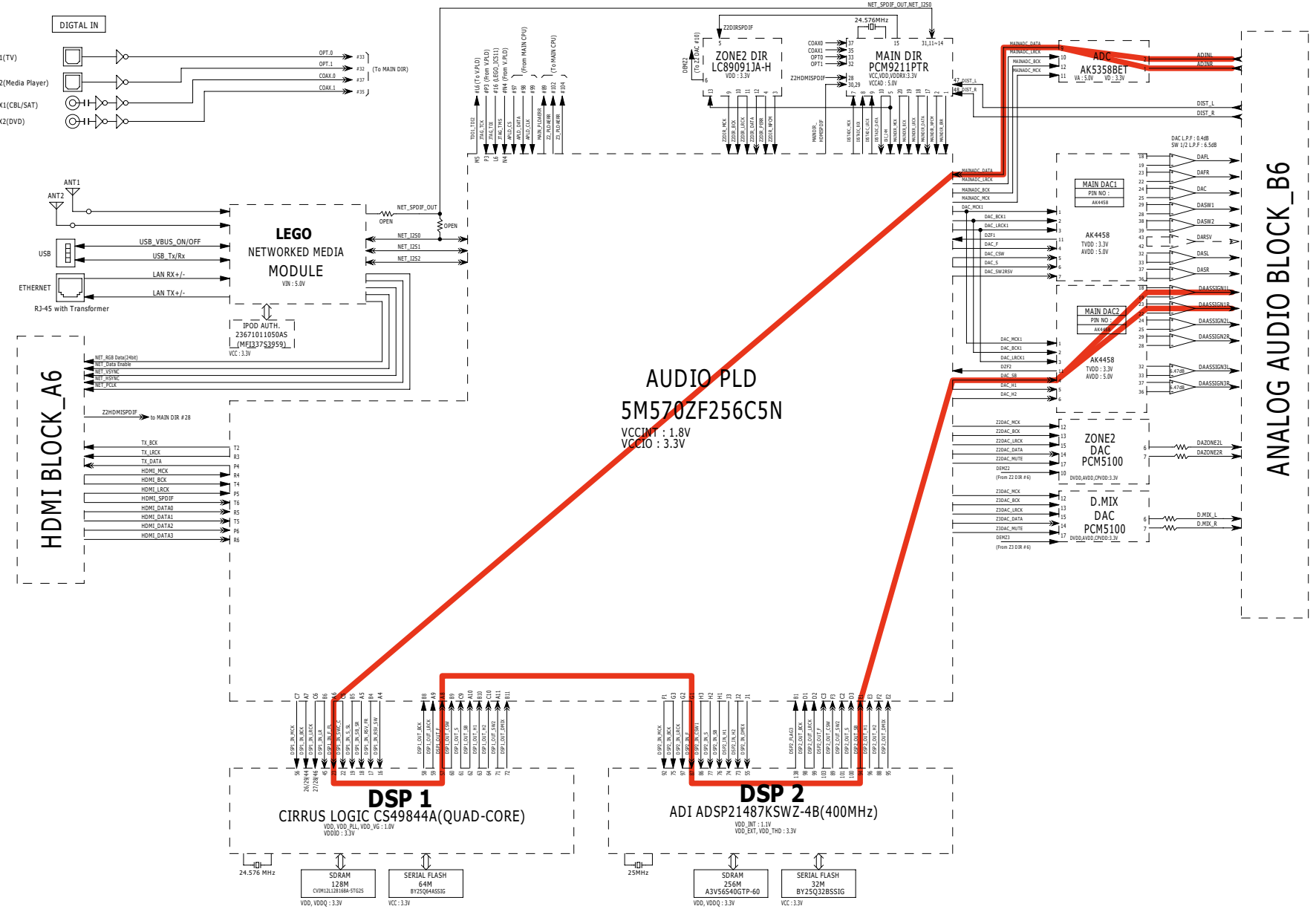


fig.A10a

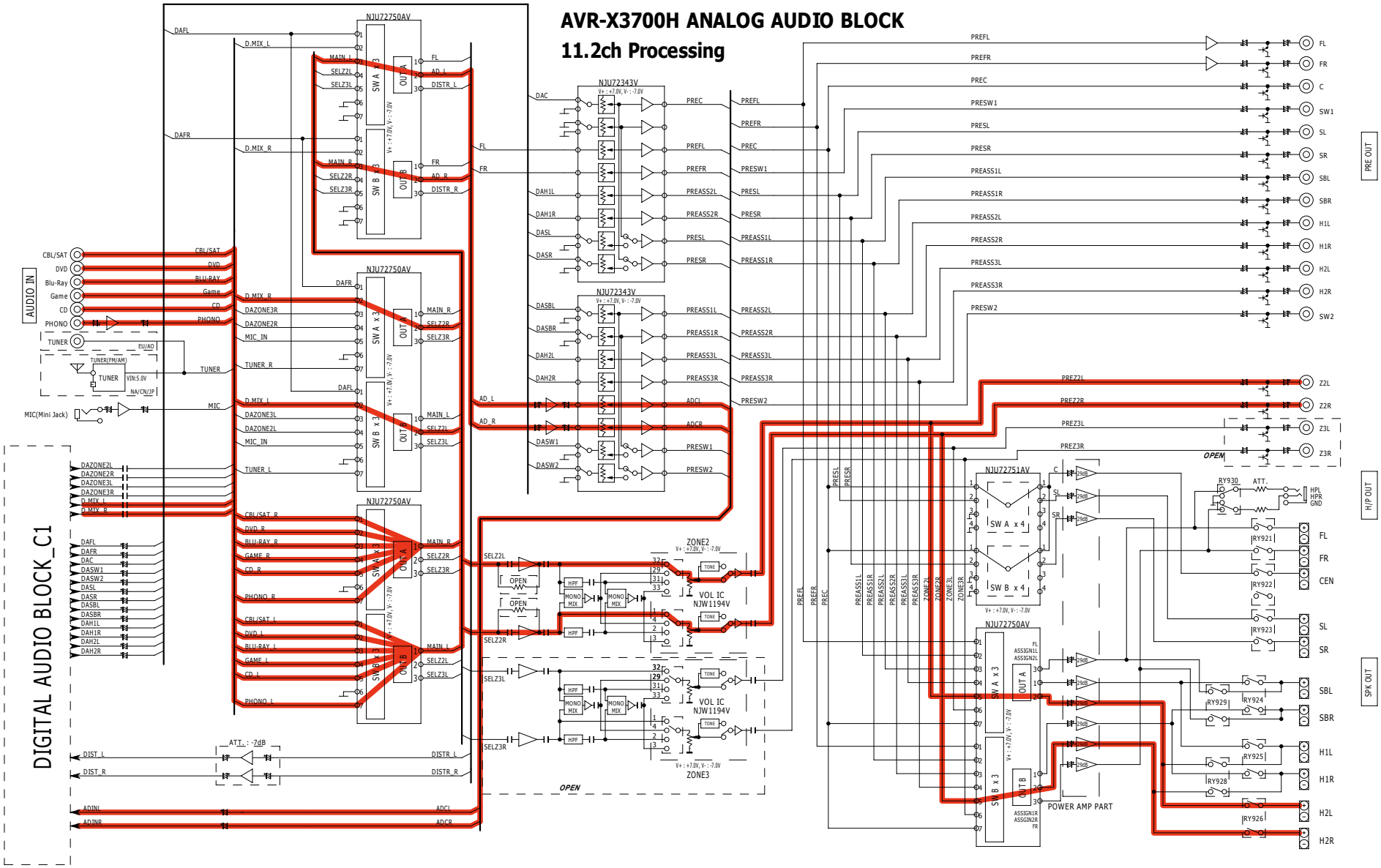

AVR-X3700H ANALOG AUDIO BLOCK
11.2ch Processing
DIGITAL AUDIO BLOCK_C1
AUDIO IN
CBL/SAT
DVD
Blu-Ray
Game
CD
PHONO
TUNER
MIC(Mini Jack)
NJU72750AV
NJU72343V
NJU72751AV
VOL IC NJW1194V
ZONE2
ZONE3
POWER AMP PART
PRE OUT
H/P OUT
SPK OUT
OPEN

fig.A10b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

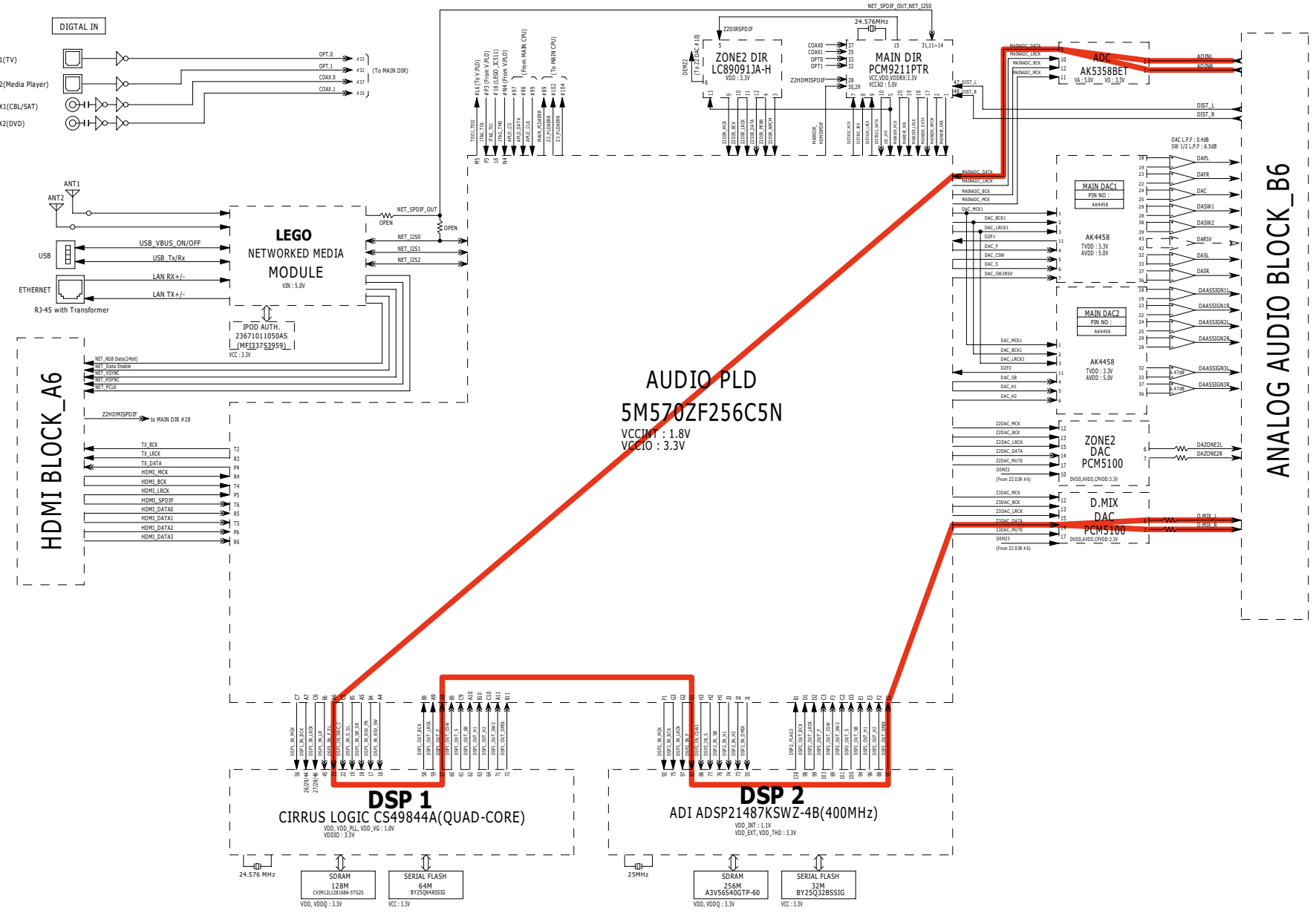


fig.V01

AVR-X3700H ANALOG VIDEO BLOCK

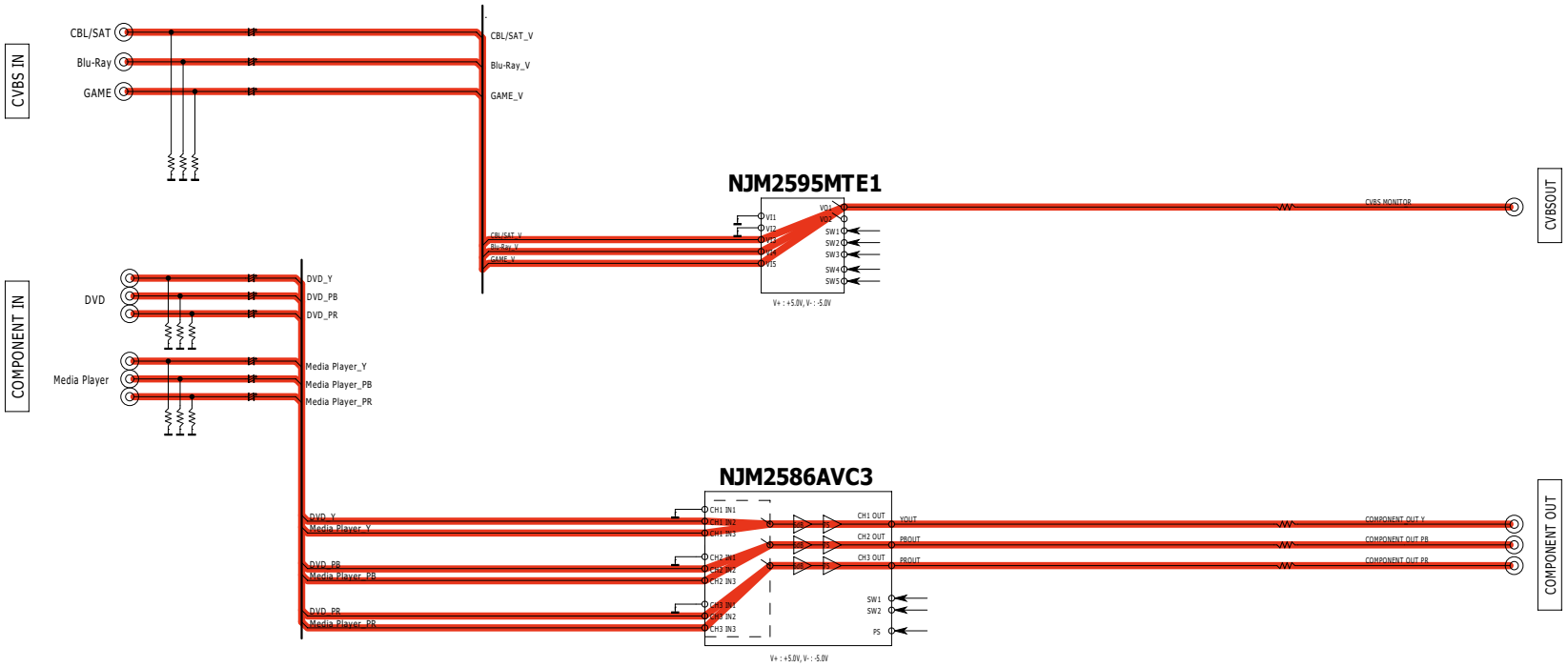


fig.V02a

AVR-X3700H HDMI BLOCK

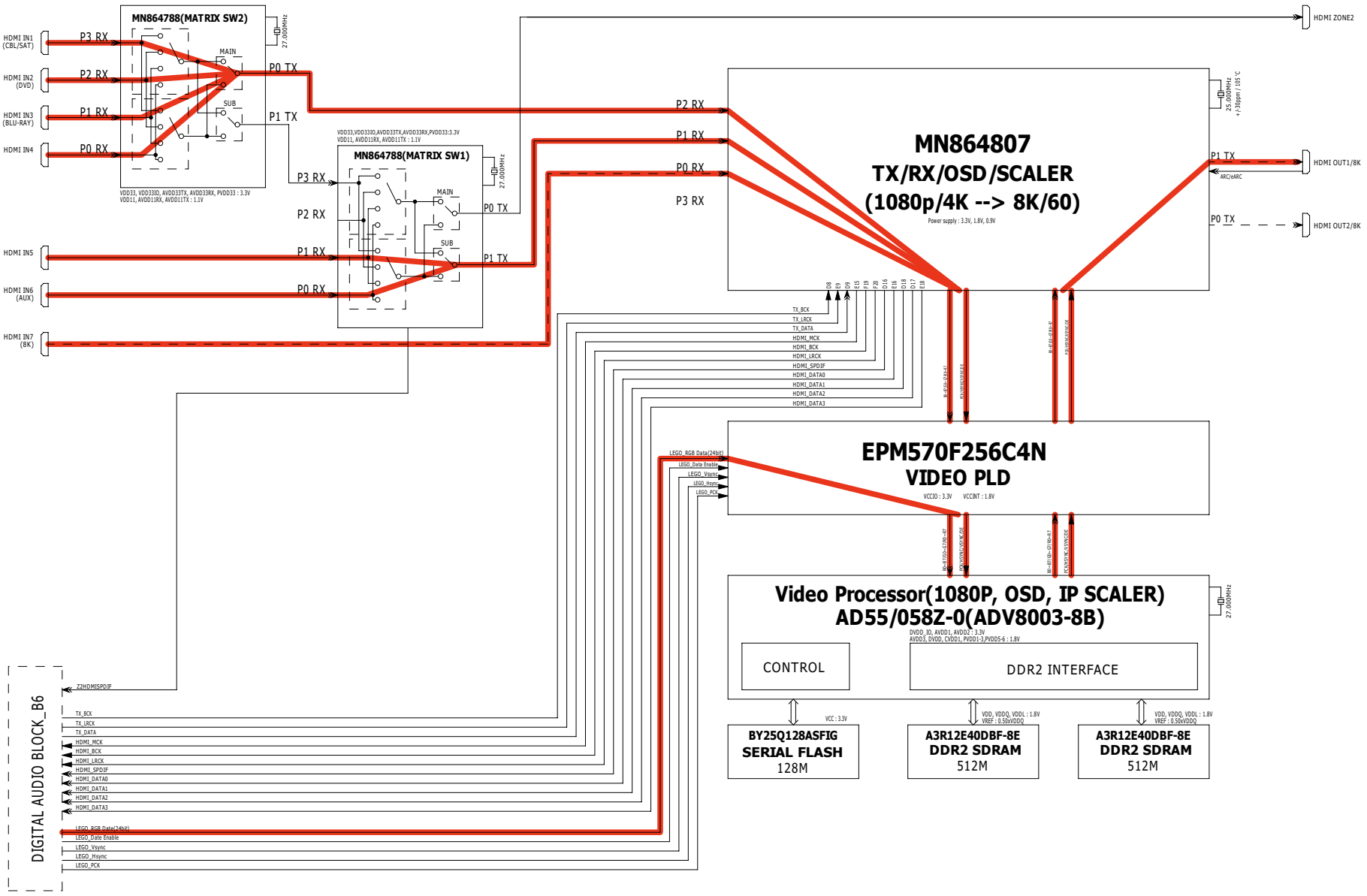


fig.V02b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

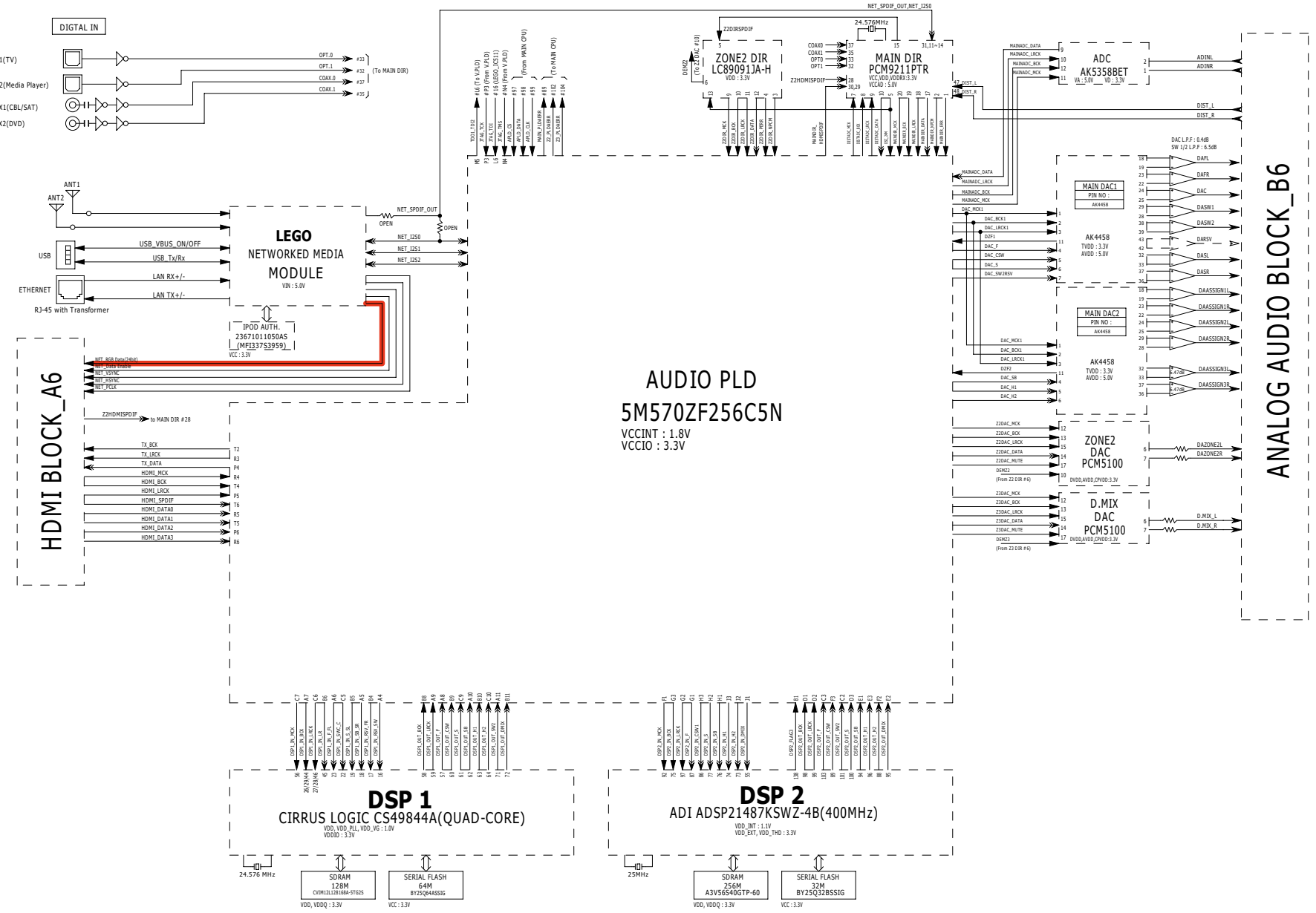


fig.V03

AVR-X3700H HDMI BLOCK

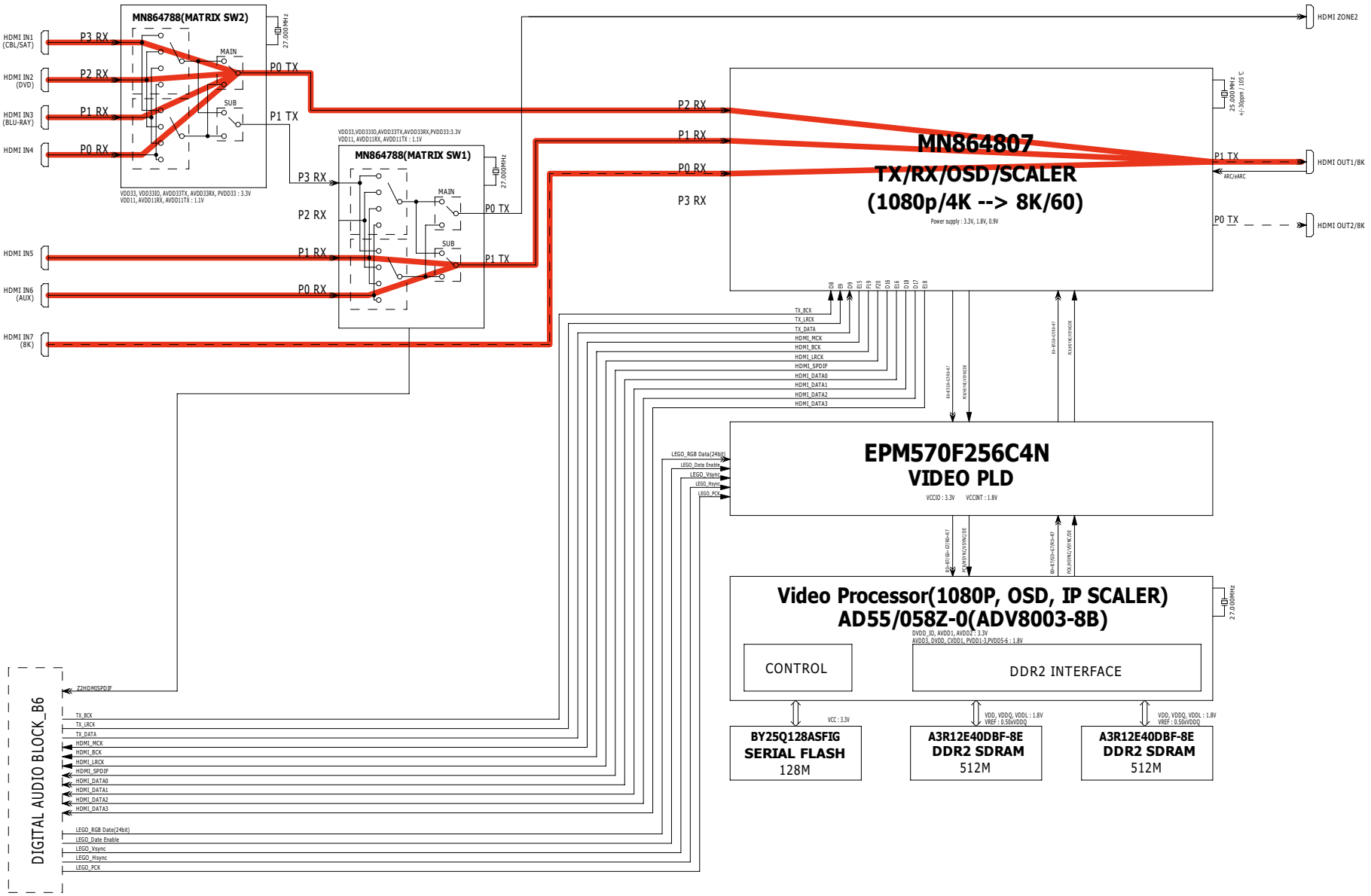


fig.V04

AVR-X3700H HDMI BLOCK

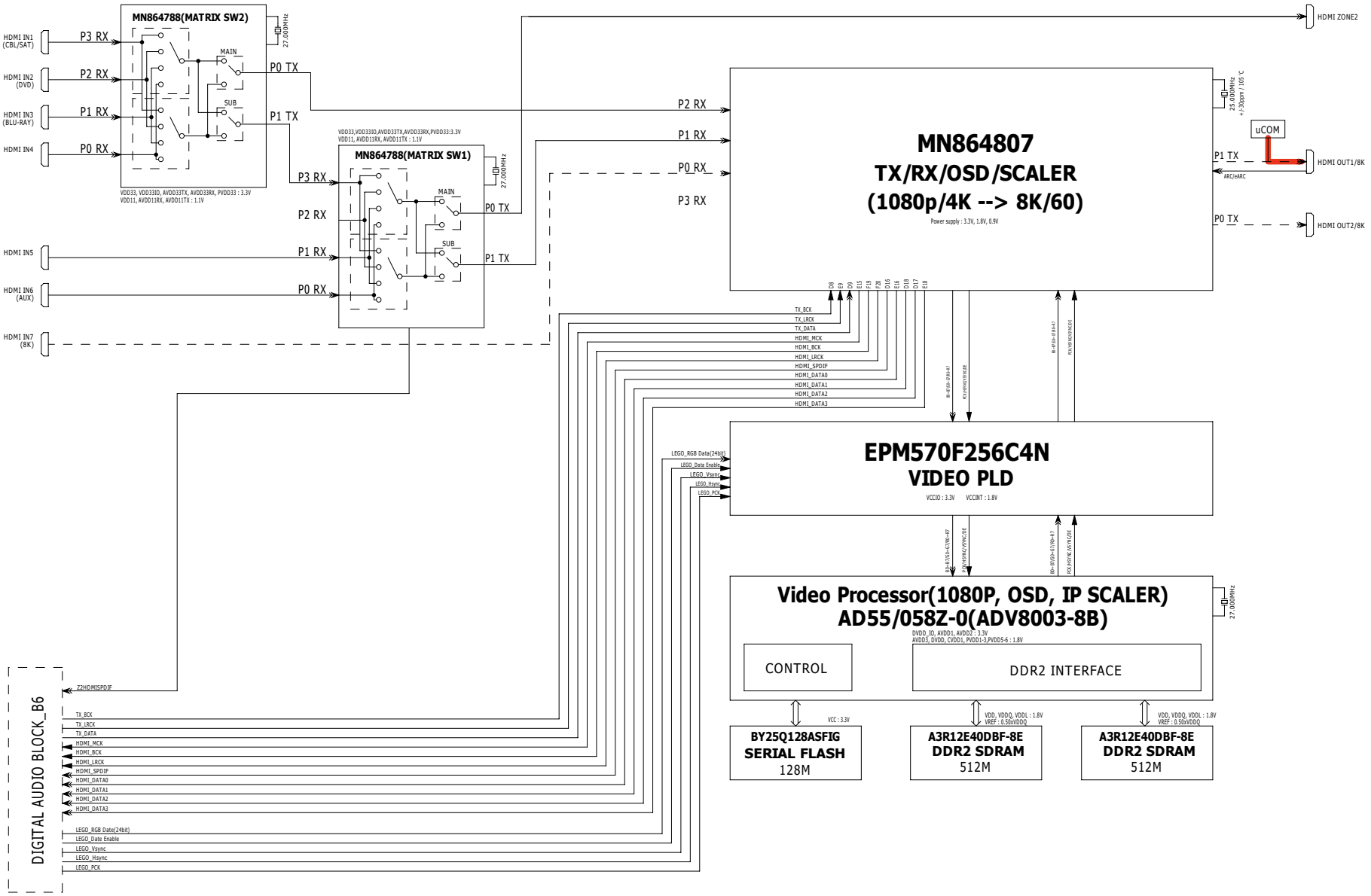
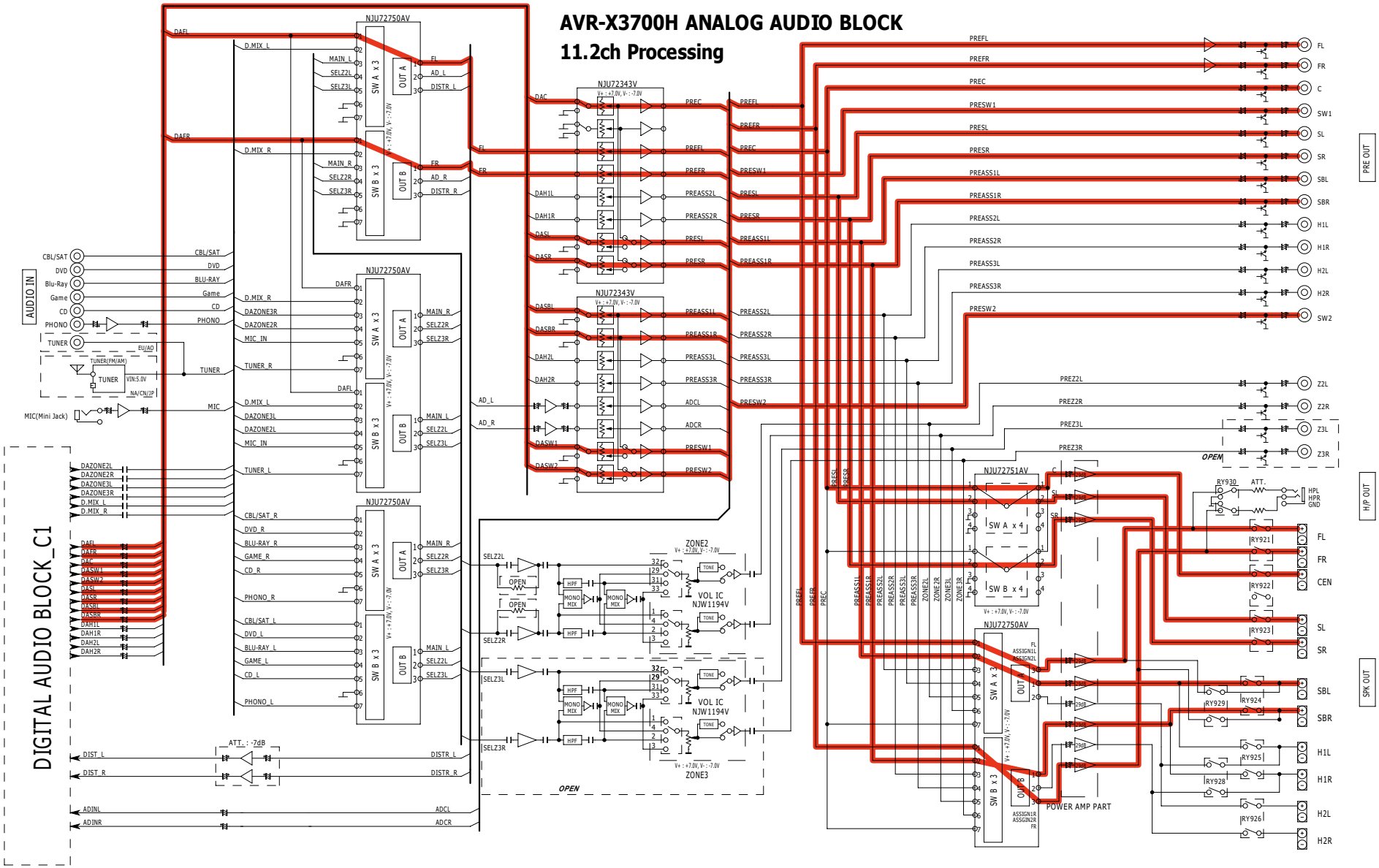


fig.V05a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ATT. : -7dB
POWER AMP PART
PRE OUT
H/P OUT
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FL
FR
C
SW1
SW2
SL
SR
SBL
SBR
H1L
H1R
H2L
H2R
Z2L
Z2R
Z3L
Z3R
CEN
HPL
HPR
GND

fig.V05b

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

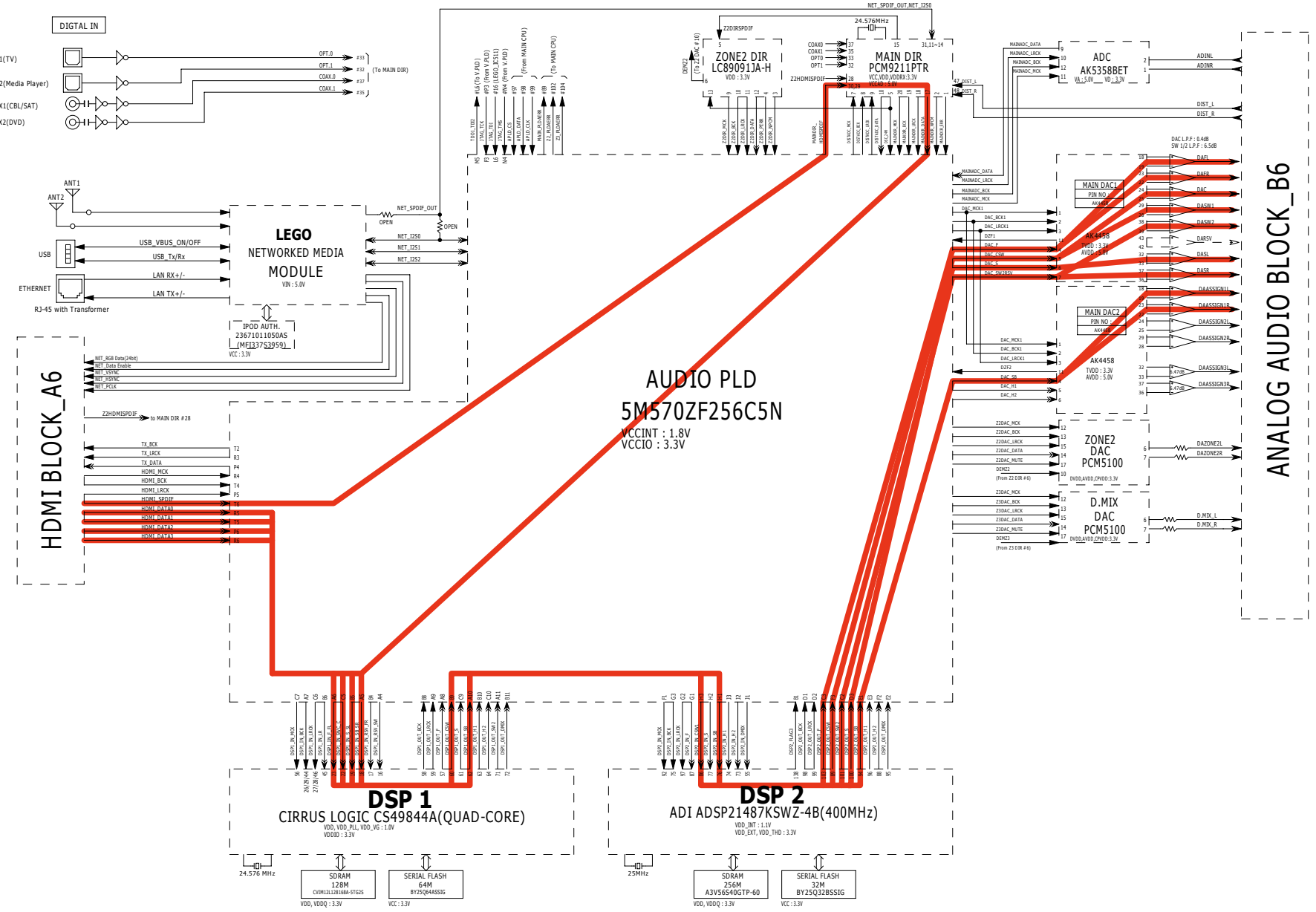


fig.V05c

AVR-X3700H HDMI BLOCK

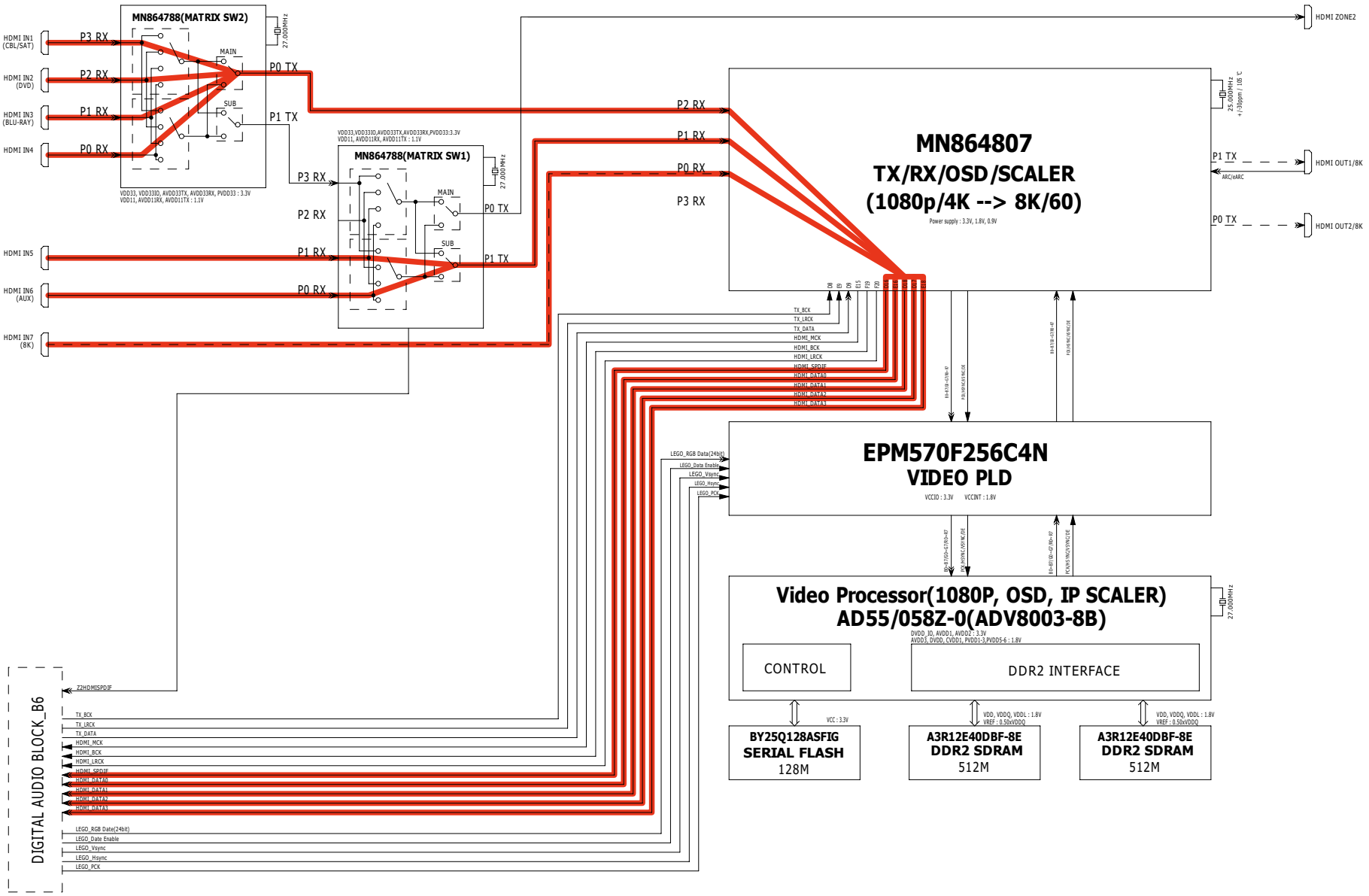


fig.V06a

AVR-X3700H DIGITAL AUDIO BLOCK(CIRRUS+ADI FALCON)

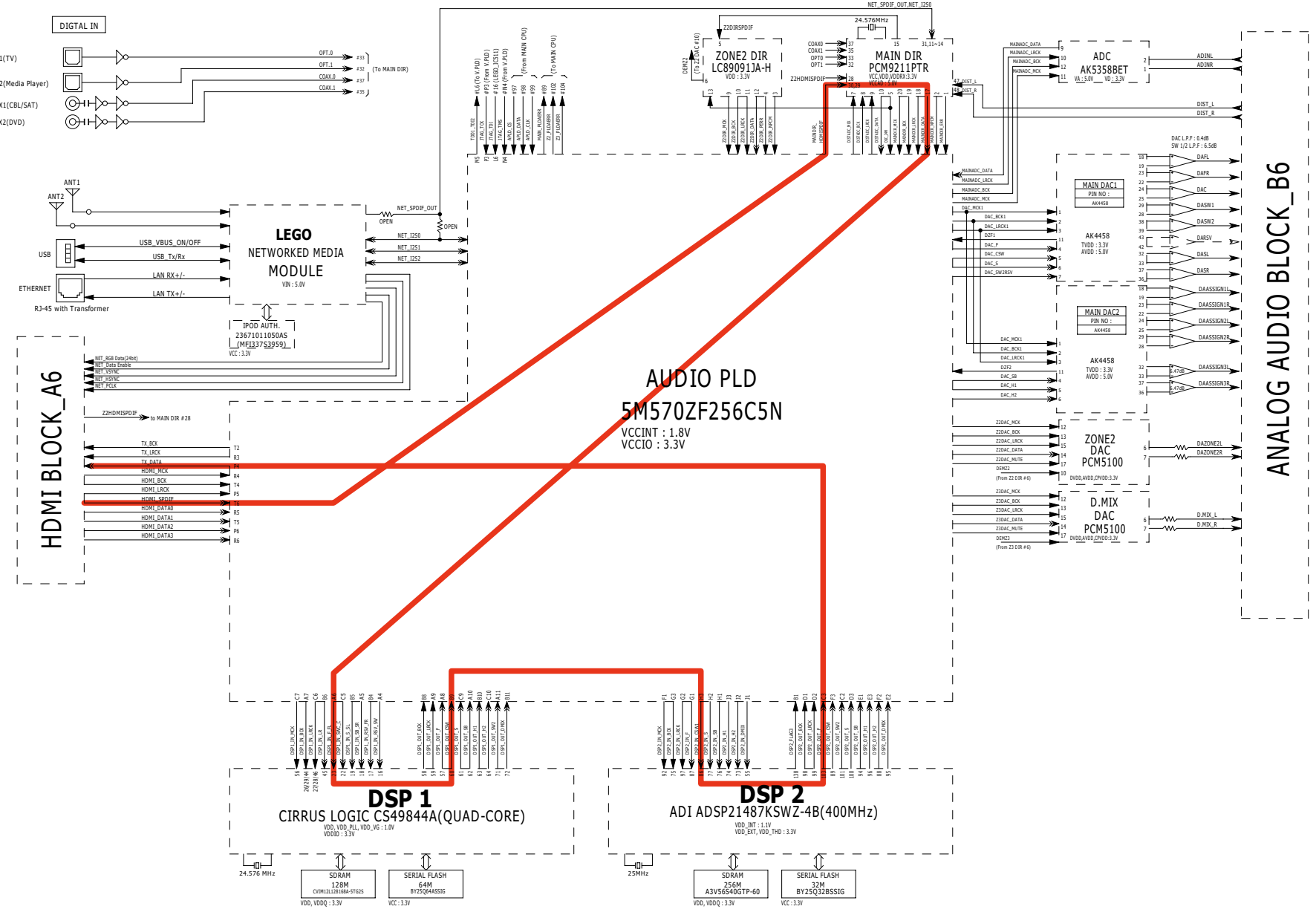


fig.V06b

AVR-X3700H HDMI BLOCK

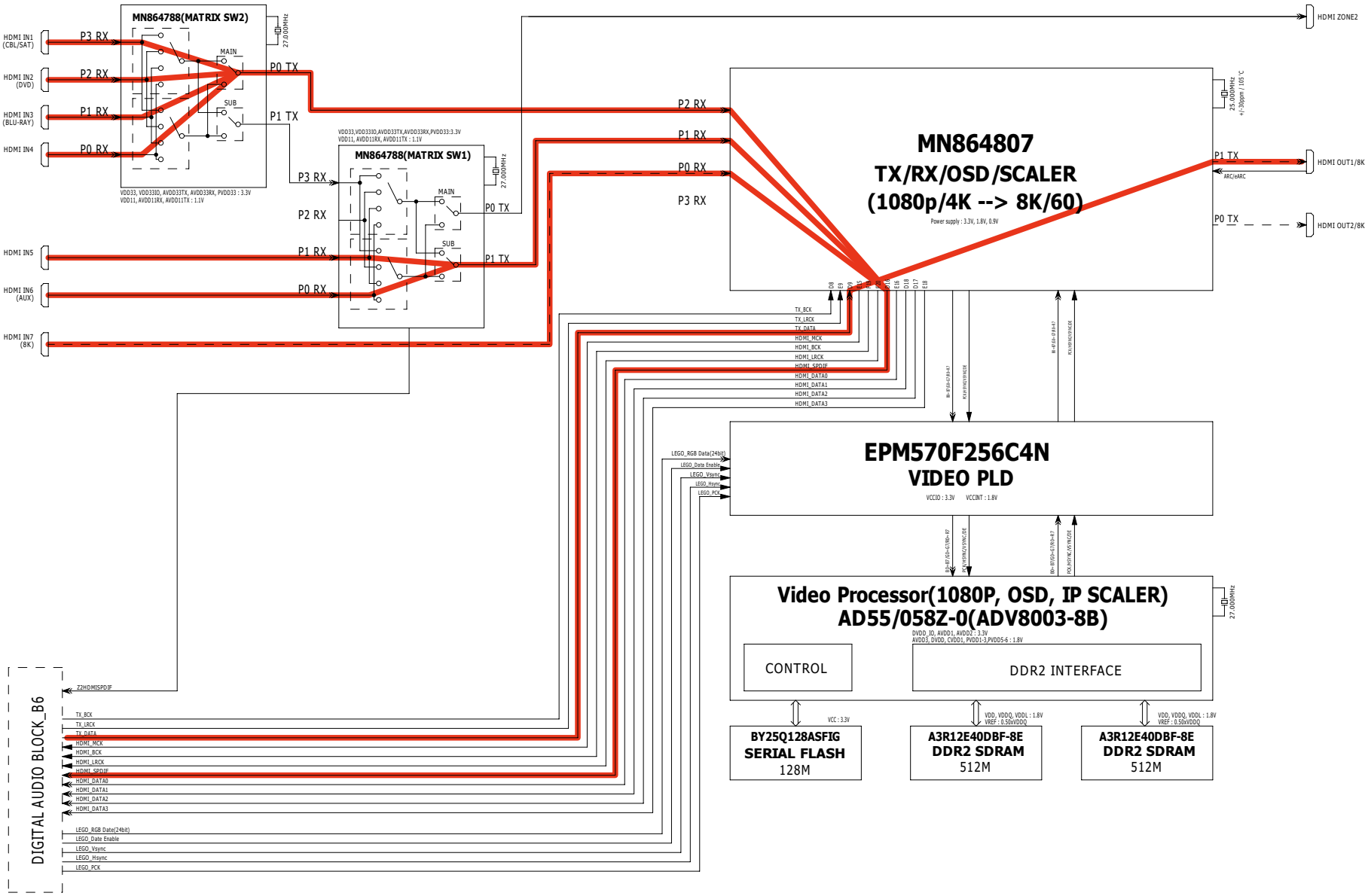


fig.V07

AVR-X3700H HDMI BLOCK

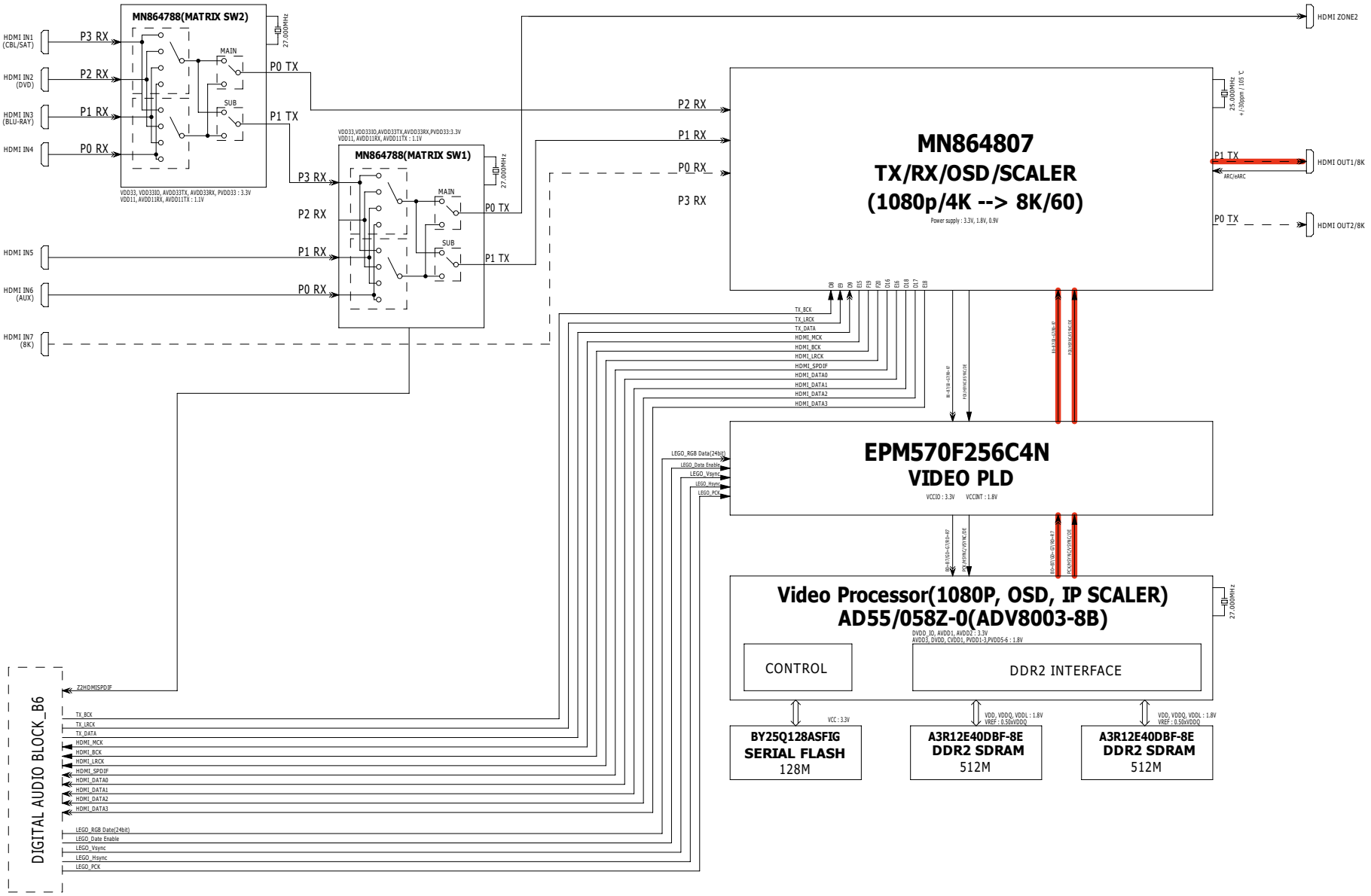
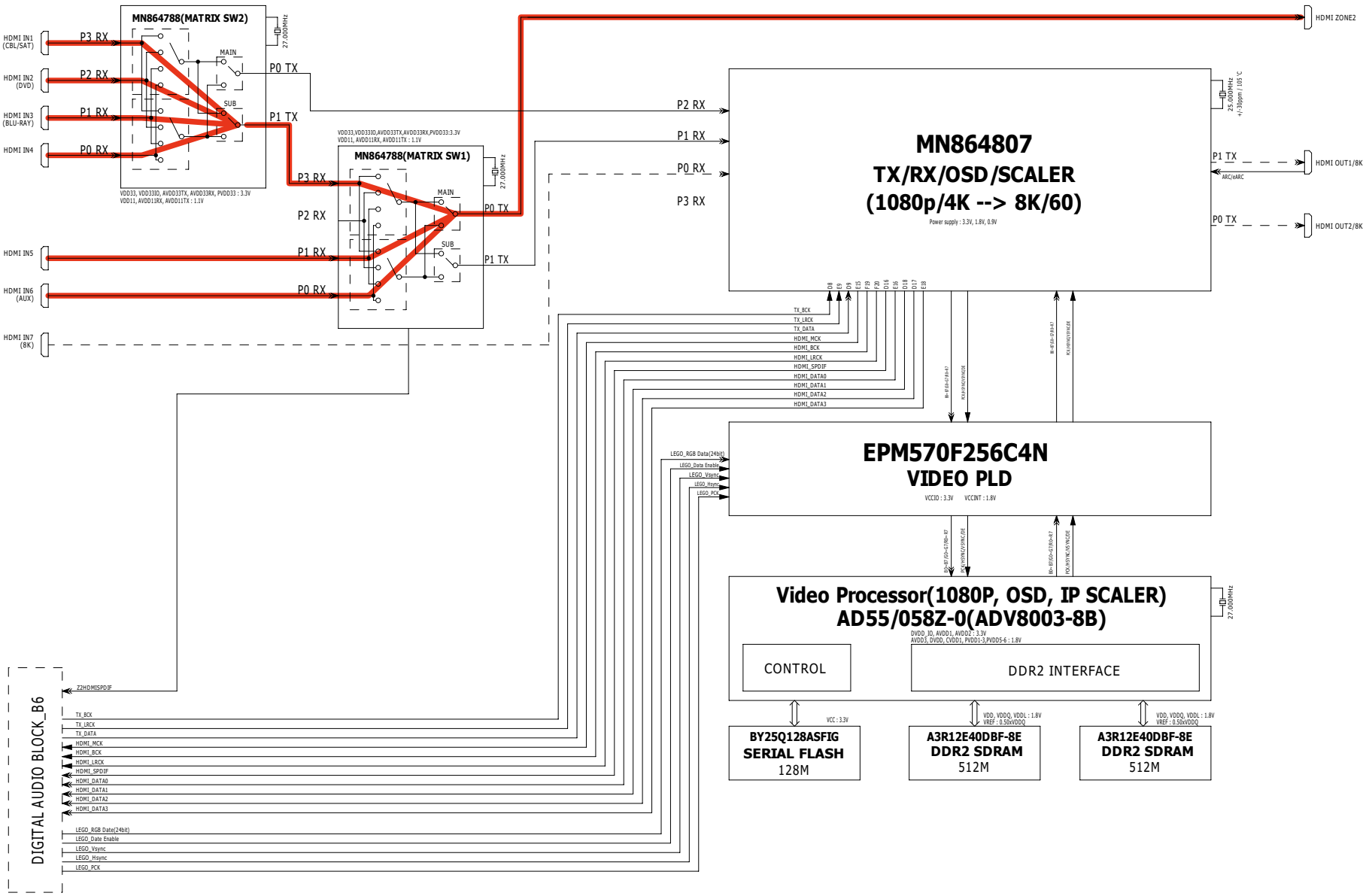


fig.V08

AVR-X3700H HDMI BLOCK



JIG FOR SERVICING

Use the following jigs (extension cable kit) when repairing the PCBs.
Order with your dealer for the jigs your dealer if necessary.

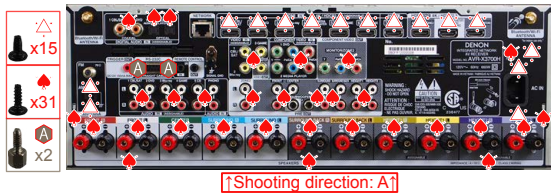
CAUTION : Incorrect connections may cause malfunction.

Connection of Jig for DIGITAL PCB
---Items to Be Prepared---

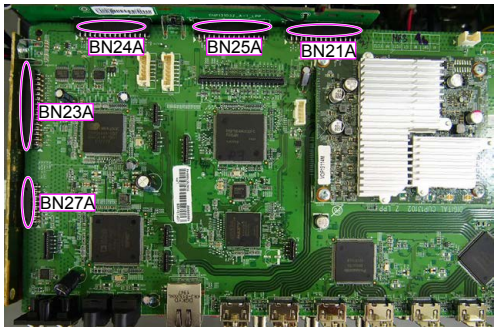
8U-110084S : EXTENSION UNIT KIT	:	1 Set
8U-1101365 : EXTENSION UNIT KIT	:	1 Set
900639103810S : JIG 29P EXTENSION CABLE	:	1 Set
Insulation sheet (Not supplied)	:	3 sheet
Ground lead (Not supplied)	:	3 pc

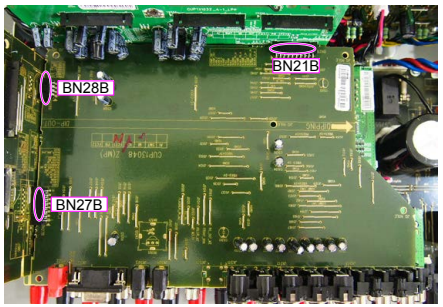
-Proceeding-

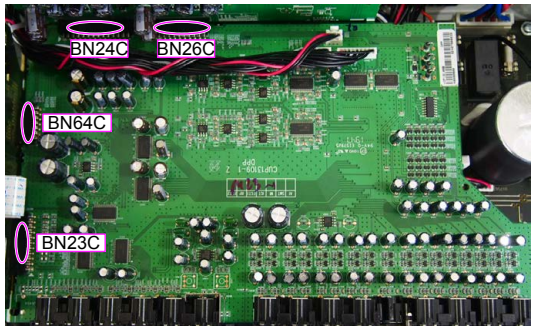
(1) Remove the screws.



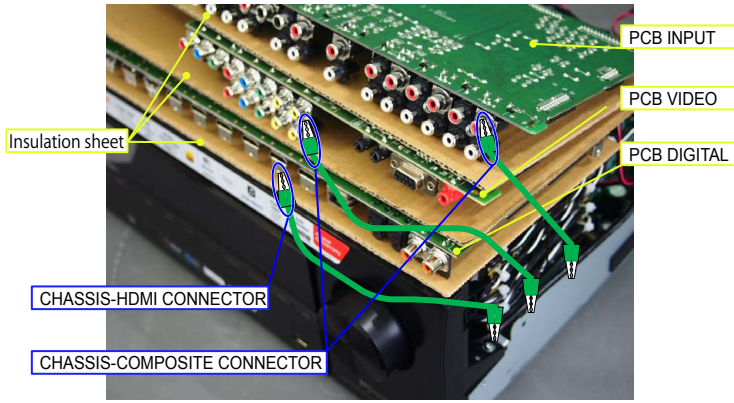
(2) Remove the connector PCB.



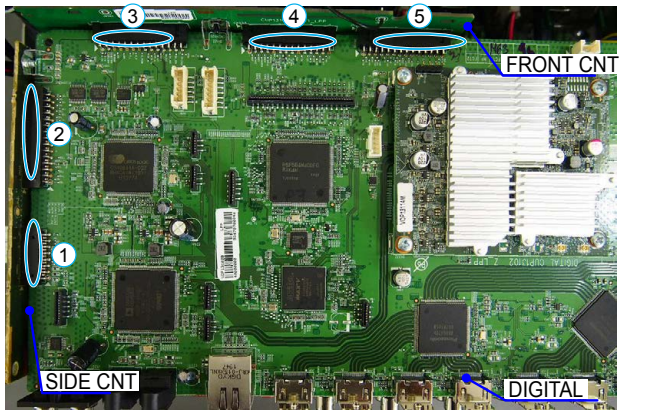


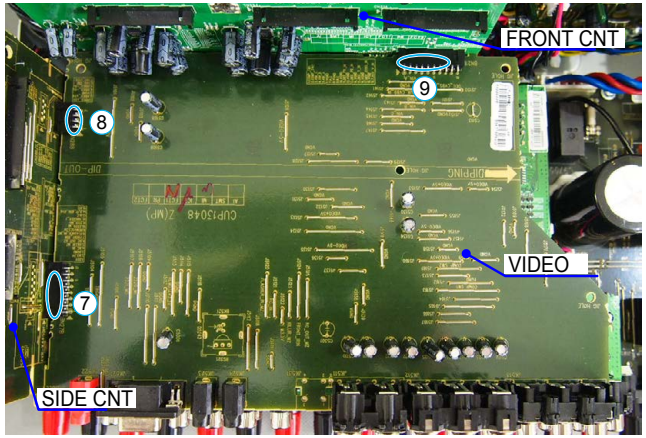


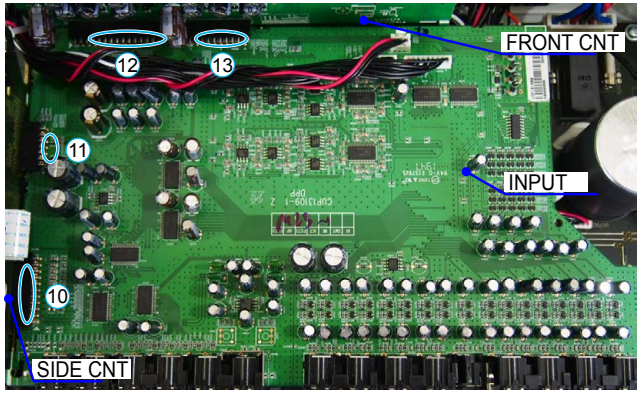
(3) Remove the DIGITAL PCB from the chassis and turn it over.
Place an insulation sheet larger than the PCB underneath the DIGITAL PCB.
※ Connect the earth of the PCB to the chassis using an earth wire, etc.



(4) Connect the expansion cables.







Board-to-Board Connections

No.	Pin	Ref. No.	PCB		Ref. No.	PCB
①	15pin	CN27A	SIDE CNT	⟷	BN27A	DIGITAL
②	29pin	CN23A	SIDE CNT	⟷	BN23A	DIGITAL
③	27pin	CN24A	FRONT CNT	⟷	BN24A	DIGITAL
④	27pin	CN25A	FRONT CNT	⟷	BN25A	DIGITAL
⑤	27pin	CN21A	FRONT CNT	⟷	BN21A	DIGITAL
⑥	15pin	CN27B	SIDE CNT	⟷	BN27B	VIDEO
⑦	7pin	CN28B	SIDE CNT	⟷	BN28B	VIDEO
⑧	19pin	CN21B	FRONT CNT	⟷	BN21B	VIDEO
⑨	21pin	CN23C	SIDE CNT	⟷	BN23C	INPUT
⑩	13pin	CN64C	SIDE CNT	⟷	BN64C	INPUT
⑪	27pin	CN24C	FRONT CNT	⟷	BN24C	INPUT
⑫	19pin	CN26C	FRONT CNT	⟷	BN26C	INPUT

Adjusting Idling Current

NOTE : Adjusting the idling current when "**ECO Mode**" is set may damage the Power AMP.

1. Preparation

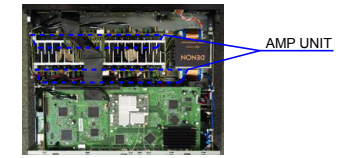
(1) Prepare a DC voltmeter.
(2) Place the unit under normal usage conditions, away from highly ventilated areas such as next to an air conditioning machine or electric fan.
The set requires an ambient temperature of 15℃ to 30℃ and standard humidity.
(3) Settings of This Unit
- POWER (Power source switch) STANDBY
- SPEAKER (Speaker terminal) No load
(Do not connect equipment such as speakers or dummy resistors.)

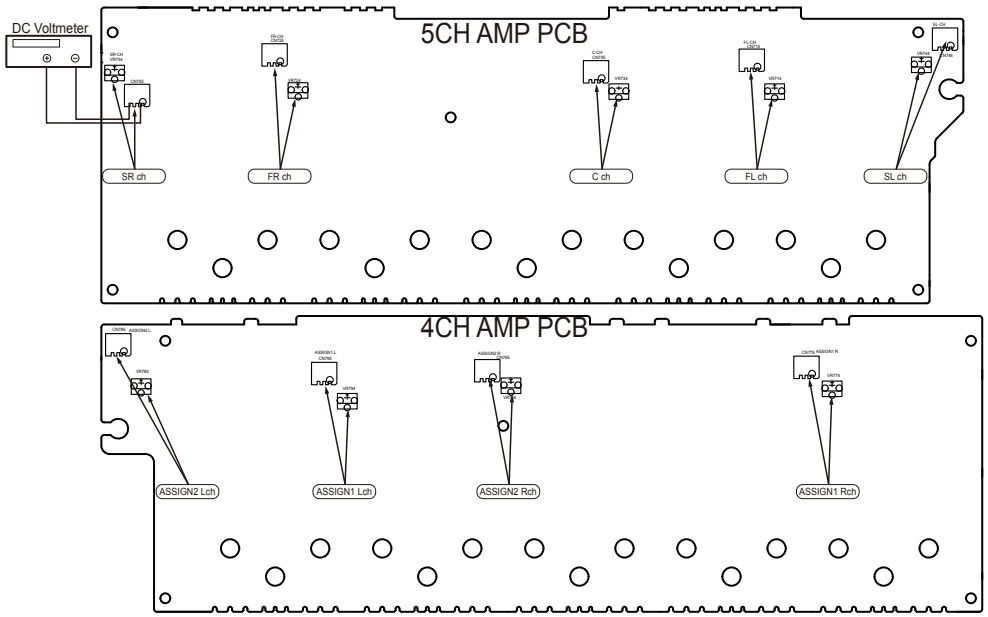
2. Adjustment Procedure

(1) Make sure that "**ECO Mode**" is off.
•Press the "**SETUP**" button on the remote control to display the GUI menu.
•Press the cursor button to select "**General**" → "**ECO**" → "**Mode**" → "**Off**".
(2) Remove the top cover and turn **VR714** (ALL Channel) of the AMP PCB counterclockwise(↺) as far as possible.
(3) Connect the DC Voltmeter to the test points.

FRONT-Lch	: CN715	: VR714
FRONT-Rch	: CN725	: VR724
CENTER ch	: CN735	: VR734
SURROUND-Lch	: CN745	: VR744
SURROUND-Rch	: CN755	: VR754
ASSIGN-2Rch	: CN765	: VR764
ASSIGN-1Rch	: CN775	: VR774
ASSIGN-2Lch	: CN785	: VR784
ASSIGN-1Lch	: CN795	: VR794

(4) Connect the power cord to an outlet. Next, press the power button to turn on the power.
(5) Set this unit as follows.
MASTER VOLUME : "---" (↺ min.) : turn counterclockwise to the lowest position.
SPEAKER (Speaker terminal) : No load
(Do not connect equipment such as speakers or dummy resistors.)
MODE : MCH STEREO
FUNCTION : TUNER
(6) Turn **VR714** clockwise (↻) and adjust the voltage of the test point to "**8.0mV ± 0.5mV DC**" within 2 minutes.
(7) Check whether the voltage is within the range "**8.0mV ± 2mV DC**" 10 minutes after adjustment.
(8) Adjust the variable resistance of each channel using the same method.





UPDATING

PROCEDURE AFTER REPLACING THE PCB.

PROCEDURE AFTER REPLACING THE U-COM, ETC.

FIRMWARE UPDATE PROCEDURE

1. Items necessary for update
2. Update preparation with a USB flash drive
3. Update method when the DIGITAL PCB or network module is replaced (Using a USB flash drive)
4. Update Method for Service Region Settings
5. Normal Firmware Update Method from USB Flash Drive
6. Normal Firmware Update Method from OTA
7. About the error codes

PROCEDURE AFTER REPLACING THE PCB.

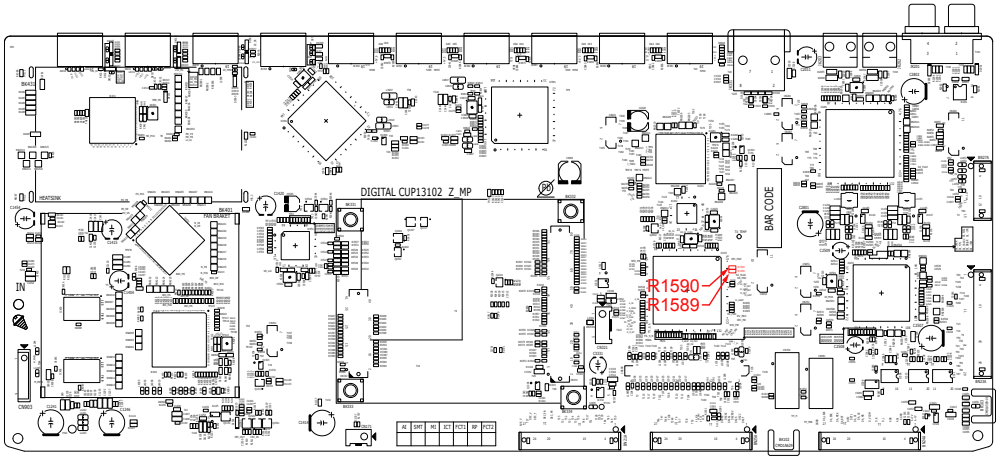
The procedure after replacing the printed circuit boards is as follows.

(1) Change the resistor for setting the region.

Model Area	DIGITAL PCB	
	R1589	R1590
North America (E3)	0	OPEN
Europe (E2)	OPEN	0
China (E1C)	10k	10k

See the PCB below.

(2) Be sure to replace the software with the latest version.



⚠ (3) Notes

There are combinations of PCBs.

	FRONT CNT OLD PCB CUP13103Z_A-1	FRONT CNT NEW PCB CUP13239Z_A-1	SMPS PCB D9004
DIGITAL OLD PCB CUP13102 Z	○	-	UF4007G
DIGITAL NEW PCB CUP13238 Z	-	○	UF207

PROCEDURE AFTER REPLACING THE U-COM, ETC.

The procedure after replacing the MCU (microprocessor), flash ROM, etc. is as follows.
Implement the update method when the DIGITAL PCB or network module is replaced.

PCB Name	Ref. No.	Description	Procedure after Re-placement	Remark
DIGITAL	IC151	R5F564MJCDFC	B	SOFTWARE : Main
DIGITAL	IC253	BY25Q64ASSIG	B	SOFTWARE : DSP1 ROM
DIGITAL	IC283	BY25Q32BSSIG	B	SOFTWARE : DSP2 ROM
DIGITAL	IC404	BY25Q128ASFIG	B	SOFTWARE : GUI ROM
DIGITAL	IC221	5M570ZF256C5N	C	SOFTWARE : AUDIO PLD
DIGITAL	IC421	EPM570F256C4N	B	SOFTWARE : VIDEO PLD
MODULE	C46	NETWORK MODULE	D	SOFTWARE : Network

Procedure after Replacement

A : The software has been written. The software is not written at the time of replacement.

B : The software has been written. The software may need to be rewritten by version updates. Check the version.

C : The software has not been written. The software needs to be written after replacement.
See "FIRMWARE UPDATE PROCEDURE" for information on writing the software.

D : The software has been written. Be sure to rewrite with the latest software for your service region.
See "3. Update method when the DIGITAL PCB or network module is replaced (Using a USB flash drive)" for information on rewriting the software.

FIRMWARE UPDATE PROCEDURE

1. Items necessary for update

Items necessary for update are as follows.

Update Type	Needed Part for Update	Requirement	Offered / not Offered		
			Standard Service Equipment Not offered by D&M	Purchase from D&M Article code	Download from SDI
Via USB	USB flash drive (USB 2.0 : Min 1GB) • We recommend a USB memory device that has an LED installed.	Formatting FAT16 or FAT 32	X	-	"Table 1" or "Table 2"
Via OTA	Internet Connection by Broadband Circuit	-	X	-	-
	Modem	-	X	-	-
	Router	-	X	-	-
	Ethernet cable (CAT-5 or greater is recommended)	-	X	-	-

Table 1

Update download file when the DIGITAL PCB or network module is replaced

Model Name	Model Area	Download from SDI
AVR-X3700H AVC-X3700H	ALL	avr_40.prod.update.factory.xxxx.zip

Table 2

Update download file when the firmware is updated (Two files, "HW component" and "LEGO component")

Model Name	Model Area	Download from SDI		
		For HW component		For LEGO component
AVR-X3700H E3	North America (E3)	Product ID : 000101210100	DPMS_AVR-X3700H_LEGO_xxxx.zip	heos_40.prod_x.xxx.xx.zip
AVC-X3700H E2	Europe (E2)	Product ID : 000101210200	DPMS_AVC-X3700H_LEGO_xxxx.zip	
AVR-X3700H E1C	China (E1C)	Product ID : 000101210500	DPMS_AVR-X3700H_LEGO_xxxx.zip	

2. Update preparation with a USB flash drive

You can update the firmware by downloading the latest version with USB flash drive.

2.1. Connecting to the USB flash drive

(1) Preparation

- Windows PC
- USB flash drive format : Prepare a USB flash drive formatted in FAT16 or FAT32.
  ※We recommend a USB flash drive that has an LED installed.

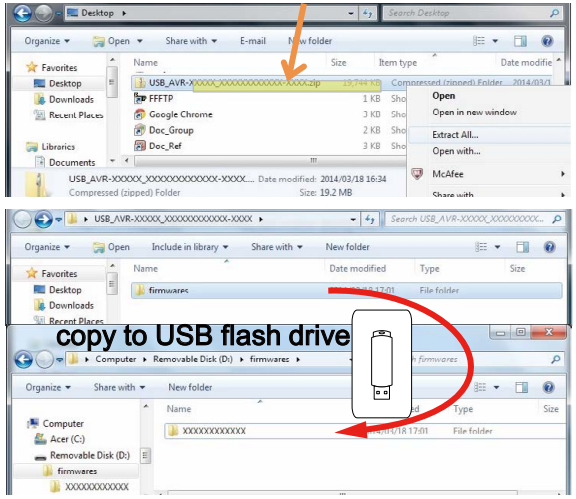
NOTE :

- Use a memory that supports USB2.0.
- Do not run the USB flash drive through a hub.
- Do not connect a computer to the USB port of this unit using a USB cable.
- Do not use an extension cable when connecting the USB flash drive.
- Save the update file on a blank USB flash drive for use.
- If a USB flash drive cannot be updated, replace it with a different USB flash drive and perform the update again.

2.2. Unzipping the Downloaded File

Unzip the downloaded file on your computer.

XXXXXXXXXXX	xxxxxxxxxx_xxxxxxxx.zip



There are folders or files after unzipping.
Copy these folders or files onto the USB flash drive.
The folders or files must be placed in the root directory of the USB flash drive.

3. Update method when the DIGITAL PCB or network module is replaced (Using a USB flash drive)

3.1. File structure on USB flash drive

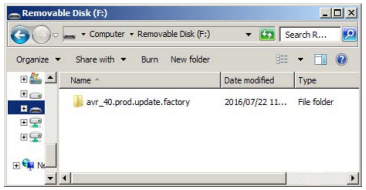
DIGITAL PCB or network module is replaced onto the USB flash drive in the following structure.

After unzipping the files, store them in the root of the same USB flash drive.

Model Area	Download from SDI
ALL	avr_40.prod.update.factory.xxxx.zip

USB flash drive root
+ avr_40.prod.update.factory
  + xxxxxxzz.ota-download
  + heos_40.prod.update.factory

xxxxxx : Model name
zz : Region



3.2. Start the update.

NOTE :
- Remove the LAN cable from this unit when updating.
  (Do not connect to a wired or wireless network.)
- The GUI menu setting details and image quality adjustment setting details are initialized when Firmware Factory Restore is performed. Therefore, take a note of the setting details beforehand and reconfigure the settings after update.
- Do not remove the USB flash drive until updating is completed.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

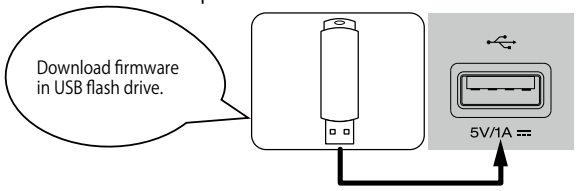
Once an update is started, normal operations cannot be performed until it is completed.

(1) Press the power button to turn on the power.
(2) Wait for this unit to start up.
(3) Set the input source to HEOS Music.
Check that the display is as shown below.

▶TuneIn Internet Radio	or	No Network Connection

Content of the display is scrolled.

(4) Insert the USB flash drive into the USB port.



(5) USB Update starts automatically.
The Standby LED lights red.

Display during USB update

Please wait▶▶▶▶▶
↓
Update▶▶▶**% **m
↓
Update Completed

It takes a maximum of approximately 25 minutes for update to complete.

(6) The unit restarts when update is complete.
※When update is complete, the folder name on the USB flash drive changes to "**avr_40.prod.update.factory.done**". To use the files again, delete the "**.done**" part.

(7) Execute Firmware Factory Restore.

AVR-X3700H for E3, E1C

While holding down buttons "**TUNER PRESET CH -**" and "**DIMMER**" simultaneously, press the power button to turn on the power.

AVC-X3700H for E2

While holding down buttons "**PURE DIRECT**" and "**DIMMER**" simultaneously, press the power button to turn on the power.

Display during Firmware Factory Restore

Restore **
↓
Restoring FW...
↓
Restore▶▶**% **m
↓
Completed

It takes approximately 15 minutes for Firmware Factory Restore to complete.

(8) Execute Service Region Settings.
See "4. Update Method for Service Region Settings"

(9) Check that the version is the specified version. See "1. Version Display Mode"

(10) If necessary, use OTA or the USB flash drive to update the firmware to the newest version.
※We recommend using the firmware update method using OTA.
See "5. Normal Firmware Update Method from USB Flash Drive" or "6. Normal Firmware Update Method from OTA"

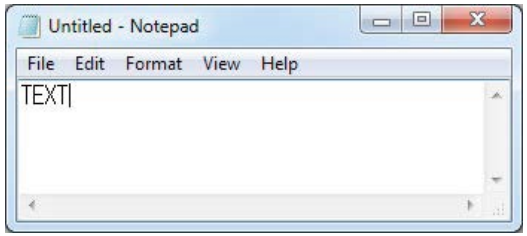
4. Update Method for Service Region Settings

Copy the Service Region Settings from the USB flash drive to this unit.

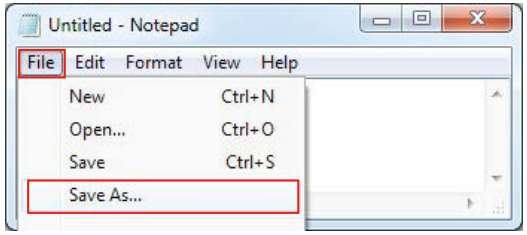
4.1. Creating a Service Region Settings file

(1) Click [Start button] - [Accessories] - [notepad] on the PC to launch the notepad.

(2) Enter "**TEXT**".

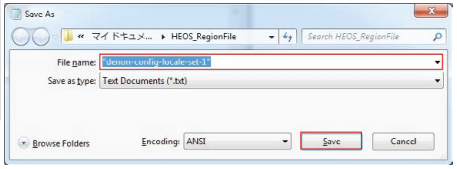


(3) Click "**File**", and then click "**Save As...**".

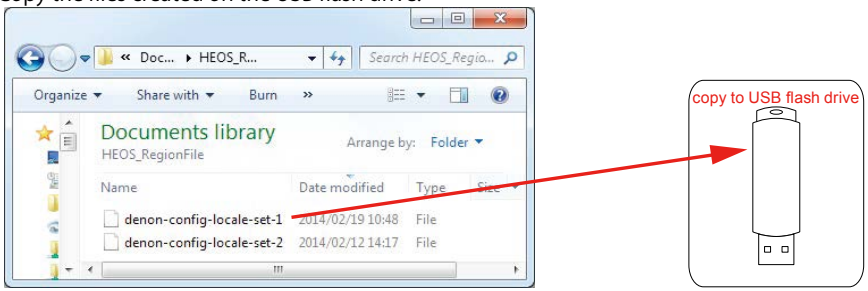


(4) Enter the file name and click the Save button.
NOTE : Enter the file name in double quotation marks. (The file extension is not required.)

Service Region	File name
North America	"denon-config-locale-set-1"
Europe	"denon-config-locale-set-2"
Japan	"denon-config-locale-set-3"
Australia	"denon-config-locale-set-4"
Korea	"denon-config-locale-set-5"
China	"denon-config-locale-set-6"
Israel	"denon-config-locale-set-7"



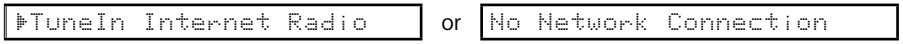
(5) Copy the files created on the USB flash drive.



4.2. Starting Service Region Settings

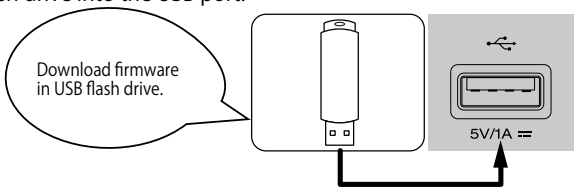
NOTE :
- Remove the LAN cable from this unit when updating.
  (Do not connect to a wired or wireless network.)
- We recommend a USB memory device that has an LED installed.

(1) Press the power button to turn on the power.
(2) Wait for this unit to start up.
(3) Set the input source to HEOS Music.
Check that the display is as shown below.



Content of the display is scrolled.

(4) Insert the USB flash drive into the USB port.



(5) Wait for at least 10 seconds before removing the USB flash drive.
(If the USB flash drive has an LED, this LED will be flashing. Remove the USB flash drive when the LED stops flashing.)

5. Normal Firmware Update Method from USB Flash Drive

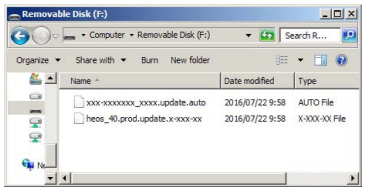
5.1. File structure on USB flash drive

Copy the normal update files onto the USB flash drive in the following structure.

After unzipping the HW component USB update files for the target model and LEGO USB update files, store them in the root of the same USB flash drive.

Model Area	Download from SDI	
	For HW component	For LEGO component
North America (E3)	DPMS_AVR-X3700HALL_LEGO_xxxx.zip Product ID : 000101210100	heos_40.prod_x.xxx.xx.zip
Europe (E2)	DPMS_AVC-X3700HALL_LEGO_xxxx.zip Product ID : 000101210200	
China (E1C)	DPMS_AVR-X3700HALL_LEGO_xxxx.zip Product ID : 000101210500	

USB flash drive root
+ AVxxxxxx_xxxx.update.auto
+ heos_40.prod.update.x-xxx-xx



5.2. Start normal update

NOTE :
- Remove the LAN cable from this unit when updating.
  (Do not connect to a wired or wireless network.)
- Do not remove the USB flash drive until updating is completed.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

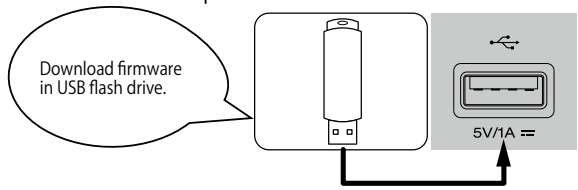
Once an update is started, normal operations cannot be performed until it is completed.
The GUI menu settings and image adjustment settings of this unit may be initialized.
Note down the settings before updating, and set them again after updating.

(1) Press the power button to turn on the power.
(2) Wait for this unit to start up.
(3) Set the input source to HEOS Music.
Check that the display is as shown below.

`▶TuneIn Internet Radio` or `No Network Connection`

Content of the display is scrolled.

(4) Insert the USB flash drive into the USB port.



(5) USB Update starts automatically.
The Standby LED lights red.

Display during USB update

`Please wait▶▶▶▶▶`
↓
`Update▶▶▶**% **m`
↓
`Update Completed`

It takes a maximum of approximately 25 minutes for update to complete.

(6) The unit restarts when update is complete.

(7) After updating the firmware, check the version.
See "1. Version Display Mode"

6. Normal Firmware Update Method from OTA

Download the latest firmware from our website and update the firmware.

---Cautions on Firmware Update---

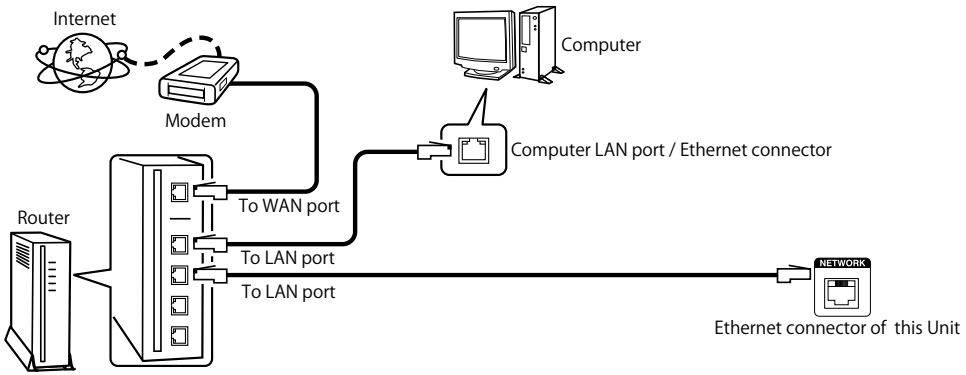
- For the update procedure, a proper broadband Internet connection environment and settings are required.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

Once an update is started, normal operations cannot be performed until it is completed.
The GUI menu settings and image adjustment settings of this unit may be initialized.
Note down the settings before updating, and set them again after updating.

6.1. Network Connection

(1) System Requirements
- Internet Connection by Broadband Circuit
- Modem
- Router
- Ethernet cable (CAT-5 or greater is recommended)

(2) Setting



6.2. Check and update the firmware

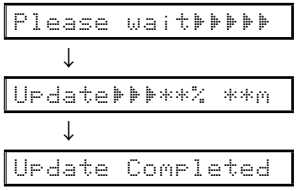
Check if there is a firmware update available. It is also possible to check approximately how long the update will take.

(1) Press the "**SETUP**" button on the remote control to display the GUI menu.

(2) Press the cursor button to select "**General**" → "**Firmware**" → "**Check for Update**".

(3) Check update
- If the firmware version is anything other than the latest version, select "**Update Now**" to update the firmware.
- "**No update required. Latest version installed.** "is displayed when the firmware version is up to date.

(4) OTA Update starts automatically.
The Standby LED lights red.
Display during OTA update



It takes a maximum of approximately 25 minutes for update to complete.

(5) The unit restarts when update is complete.

(6) After updating the firmware, check the version.
See "1. Version Display Mode"

7. About the error codes

See the table below for details on error codes and solutions when updating the firmware.
Error codes are displayed in 4 digits, YYXX(YY : DeviceID, XX : ErrorCode).

Display

Update▶▶▶**% **m

↓

Update ErrorYYXX Update ErrorYYXX (YY : DeviceID, XX : ErrorCode)

↓ ↑ The display is alternately displayed.

Please check you

Content of the display is scrolled.

Remedies

Error Code (YYXX) (DeviceID/ErrorCode)	Remedies
000A	"Connection failed. Please check your network, then try again."
0009	"Update failed. Please check your network, then try again."
0009	"Upgrade failed. Please check your network, then try again."
YY00 YY01 YY02 YY03 YY04 YY07	"Please check your network, unplug and reconnect the power cord, and try again."
YY00 YY01 YY02 YY03 YY04 YY07	"Please unplug and reconnect the power cord, and try again."
0005	"Incompatible update file found on the USB device. Please check the file."
0006	"Update file is corrupted. Please check the file."
000B	"Please contact customer service in your area." ※ Check the power supply and communication lines of each device.

Device ID table

Device ID (YY)	Device Name
00	General
01	Main CPU
0B	Main FBL (No used)
11	DSP1 or DSP
12	DSP2 ※ Except : AVR-X2700H/AVR-S960H/NR1711/SR5015
13	DSP3 (No used)
19	DSP4 (No used)
15	Audio PLD
22	Video PLD ※ Except : AVR-X2700H/AVR-X2700H/AVR-S960H/NR1711
2A	GUI
2B	PIMG ※ ONLY : AVR-X2700H/AVR-S960H/NR1711/SR5015
33	LEGO

Error Code table

Type code (XX)	Description
00	Logical error
01	Error during erasing
02	Error during writing
03	Error during verifying
04	No access for the component
05	Package mismatched. Product ID, package version un-matched of the package manifest
06	Unpack dis-available of component package file
07	Time out
08	Latest firmware has already installed.
09	Error during download
0A	Error connection
0B	Hardware Error

---Checking the Firmware Version After the Update---

After updating the firmware, check the version.
See "1. Version Display Mode"

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